Un estudio intercultural sobre las relaciones entre la alfabetización en CALL y las actitudes de estudiantes y profesores de lenguas españoles e iraníes hacia CALL

A cross-cultural study on the relationship between CALL literacy and the attitudes of Spanish and Iranian English language students and teachers towards CALL

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TITULO: *A cross-cultural study on the relationship between CALL literacy and the attitudes of Spanish and Iranian English language students and teachers towards CALL*

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TÍTULO DE LA TESIS:

Un estudio intercultural sobre las relaciones entre la alfabetización en CALL y las actitudes de estudiantes y profesores de lenguas españoles e iraníes hacia CALL

DOCTORANDO:

D. Dara Tafazoli

INFORME RAZONADO DE LAS DIRECTORAS DE LA TESIS

La Tesis Doctoral que aquí se presenta se marcó el objetivo de determinar si existen diferencias entre los estudiantes y los profesores iraníes y españoles de lengua inglesa sobre la alfabetización CALL (Computer-Assisted Language Learning) y sus actitudes hacia esta metodología. Este objetivo se ha alcanzado aplicando un diseño de investigación de métodos mixtos que contiene análisis de datos cuantitativos y cualitativos. Las facetas más significativas de la psicometría comprobadas en este estudio fueron la fiabilidad y la validez. Tras la administración del cuestionario, se calcularon las estadísticas descriptivas para, posteriormente, analizarlos con el software SPSS versión 19.0 para el análisis de los datos.

El trabajo de investigación llevado a cabo por D. Dara Tafazoli presenta, a nuestro juicico, suficientes indicios de calidad y rigor científicos como para que sea evaluado en comisión académica y presentado en defensa pública en orden a la posible adquisición del Grado de Doctor. La Tesis se compone de 8

publicaciones que ofrecen a la comunidad científica información válida sobre las actitudes hacia CALL por parte de alumnado y profesorado de inglés como segunda lengua en contexto iraní y español, siendo, por tanto, un estudio intercultural. Muestra de la relevancia de esta Tesis es la publicación del primer estudio en la *Revista Pixel Bit. Revista de Medios y Educación*, el segundo en la Revista *Theory & Practice in Language Studies*, el tercero en forma de capítulo de libro en la Editorial Universidad de Granada, y el cuarto en *Futhark: Revista de Investigación y Cultura*. Asimismo, están bajo revisión otras cuatro publicaciones en las siguientes Revistas: *Teaching English with Technology, International Journal of Information and Communication Technology Education, The Qualitative Report* y *Nordic Journal of Digital Literacy*. A esto se han de sumar otras publicaciones relacionadas de manera indirecta con la Tesis, concretamente el libro *Cross-Cultural Perspectives on Technology-Enhanced Language Learning* (editorial IGI Global) y dos artículos publicados en *Teaching English with Technology* y *International Journal of Information and Communication Technology Education* respectivamente.

En definitiva, el autor de esta Tesis ha demostrado durante todo este periodo que ha adquirido una formación adecuada como investigador, plasmada en un trabajo de investigación de interés actual y que puede ser importante para la mejora de la praxis docente en contextos de didáctica de lenguas extranjeras.

Por todo ello, se autoriza la presentación de esta Tesis Doctoral.

Córdoba, a 25 de febrero de 2019.

Firma de las directoras:

Fdo.: Dra. Mª Elena Gómez Parra *Fdo.: Dra. Cristina A. Huertas Abril*

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DEFINITION OF KEY TERMS

Attitude: Learned motivations, valued beliefs, evaluations, what one believes is acceptable, or responses oriented towards approaching or avoiding (Wenden, 1998). In this study attitude refers to the feeling of students about or towards something.

Computer-Assisted Language Learning (CALL): Any applications of technology to teaching or learning a language.

CALL Literacy: The ability to use technology at an adequate level for teaching or learning a language.

Computer Literacy: The ability to use computers at an adequate level for creation, communication and collaboration in a literate society (Son et al., 2011).

Cross-Cultural Study: A scientific method of comparative research which focuses on comparing different phenomenon in different cultures.

English as a Foreign Language (EFL): The use or study of English language by non-native speakers in countries where English is generally not a medium of communication.

ACRONYMS

AFLL: Attitudes towards Foreign Language Learning

ANOVA: Analysis of Variance

CAI: Computer-Assisted Instruction

CAL: Computer-Assisted Learning

CALI: Computer-Assisted Language Instruction

CALICO: Computer-Assisted Language Instructed Consortium

CALL: Computer-Assisted Language Learning

CALT: Computer-Assisted Language Teaching

CAT: Computer-Assisted Teaching

CBT: Computer-Based Training

CLT: Communicative Language Teaching

CMC: Computer-Mediated Communication

CMI: Computer-Mediated Instruction

EFL: English as a Foreign Language

ESL: English as a Second Language

FLL: Foreign Language Learning

GBL: Game-Based Learning

ICT: Information and Communication Technology

ICALL: Intelligent Computer-Assisted Language Learning

IT: Information Technology

LLSNS: Language Learning Social Networking Site

LMS: Learning Management System

MALL: Mobile-Assisted Language Learning

MANOVA: Multivariate Analysis of Variance

RALL: Robot-Assisted Language Learning

SNS: Social Networking Site

SPSS: Statistical Packages for Social Sciences

TBL: Task-Based Learning

TELL: Technology-Enhanced Language Learning

TESOL: Teaching English to Speakers of Other Languages

VLE: Virtual Learning Environment

WELL: Web-Enhanced Language Learning

1. Introduction

INTRODUCTION

Today, developments in technology have become an integral part of our personal and social lives, as well as a key influence on professional careers. This advancement has led teachers, syllabi and materials designers to consider the possibility of integrating technology into the mainstream curriculum development. Although some years ago there were different difficulties in applying technology-based tools in classes to help learners with their language study (Baylor & Ritchie, 2002; Fang & Warschauer, 2004; McGrail, 2005; Singhal, 1997), today teachers who fail to integrate technology in language teaching are likely to be considered behind the times (Blake, 2013; Chapelle, 2008; Tondeur, van Braak, Sang, Voogt, Fisser & Ottenbreit-Leftwich, 2012).

Computer-Assisted Language Learning (CALL) was first used by Davies and Steel (1981) in a conference paper, being this term widespread in the UK in 1982. At the same year, the Ealing College of Higher Education published the CALL-related newsletter titled *CALLBOARD*. In 1983, TESOL started up CALL Special Interest Group (Kenner, 1996; Stevens, 2003) which was a big move in the field. Nevertheless, the exact date of the appearance of CALL term is not completely clear (Davies, Otto & Rüschoff, 2013).

At the first stage of this comprehensive review, we have to define CALL. Beatty (2010) defined CALL as "any progress in which a learner uses a computer and, as a result, improves his or her language" (p. 7). Changing from simple CD-ROMs to virtual reality in computer science shows the evolving nature of computers and technology which made Beatty (2010) to consider CALL as an "amorphous" and "unstructured" discipline (p. 8). Moreover, the emergence of new literacies (like electronic literacy or multimedia literacy) warn teachers and learners to equip themselves with new technologies and literacies to meet the requirements of 21st century citizenship.

Different terms have appeared in the literature of applications of technology in pedagogy. *Computer-Aided Instruction* (CAI) refers to learning at the computer in which there is no

necessity in language education, also, the word 'instruction' refers to a teacher-centered approach. *Computer-Assisted Learning* (CAL) is similar to CAI, but the focus is now on learners. *Computer-Assisted Teaching* (CAT) consists of learning any subject at the computer. Regarding the process of teaching and learning languages, Computer-Based Training (CBT) refers to a program used for teaching of different subjects. *Computer-Mediated Instruction* (CMI) is the application of some form of computer software or hardware in instruction in which learning takes place when a learner communicate with a distant tutor; like CAI, instruction in this term shows a teacher-centered approach.

On the other hand, many terms have been coined in the support of applications of technology in language learning and teaching. *Computer-Assisted Language Teaching* (CALT) is another term which in contrast to CAL emphasizes the job of teachers in this framework. *Computer-Assisted Language Instruction* (CALI) was incorporated into the name of the professional association Computer-Assisted Language Instructed Consortium (CALICO). *Computer-Mediated Communication* (CMC) is a computer-based discussion environment in which learners need to communicate with native speakers of the target language. In contrast to CAI and CALI, the emphasis of *Computer-Assisted Language Learning* (CALL) is on language learning rather than on instruction, thus reflecting a student- rather than a teacher-centered approach. *Intelligent Computer-Assisted Language Learning* (ICALL) is a software-based program which provides learners with customized feedback based on their performances. *Technology-Enhanced Language* (TELL), as an alternative term to CALL that appeared in 1980s, refers to any applications of technology in the classroom. Moreover, Web-Enhanced Language Learning (WELL) refers to CALL where WWW is the medium for instruction. Mobile-Assisted Language Learning (MALL) and Robot-Assisted Language Learning (RALL) are the two last terms; the former deals with the application of mobile phones, and the latter concerns with the implementation of robots in language learning and teaching.

Focusing on Computer-Assisted Language Learning (CALL), as the name suggests, is the use of computers in service of language learning. Levy (1997) defined CALL as "the search for and study of applications of the computer in language teaching and learning" (p. 1). Although the name includes "computer", the term CALL embraces "any applications of Information and Communication Technologies (ICT) to teaching and learning foreign languages" (Tafazoli, Gómez & Huertas, 2018, p. 38). CALL has taken up the goal of modern approaches to language teaching, including Communicative Language Teaching (CLT), Task-Based Learning (TBL), process approaches to writing and training in language learning strategies in enhancing student autonomy and control over the language learning process (Warschauer, 1996a). In this context, there is no doubt that computer-based programs provide many novel opportunities for language learning (Doughty & Long, 2003).

Although, implementing a new phenomenon in the classroom may provide new opportunities for language learning and teaching, end-users' attitudes towards that phenomenon should be considered as well (Tafazoli, et al., 2018). Various studies have emphasized the role of attitudes in second and foreign language learning and teaching contexts (Gardner, 1985; Jahin & Idrees, 2012; Yang, 2010). Results of several studies show the positive relationship between attitudes and achievements in foreign and second language learning (Al-Tamimi & Shuib, 2009; Eshghinejad, 2016; Momani, 2009; Shams, 2008; Suleiman, 1993); this relationship, however, is litigated by other researchers (Abidin, Pour-Mohammadi & Alzwari, 2012). Notwithstanding the overall significance of attitudes in language learning and teaching processes, there is much divergence in its definition in the field of language learning.

Allport (1954) proposed a comprehensive definition of *attitude* as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response towards all subjects and situations with which it

is related" (p. 45). Another definition was offered by Gardner (1985) as "an evaluative reaction to some referent or attitude object, inferred on the basis of the individual's beliefs or opinions about the referent" (p. 9). Like Gardner's, the emphasis of Eagly & Chaiken's (1998) definition is on an evaluative response towards the subject or situation: "An attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour" (p. 269).

Ajzen (1988) viewed attitude from a socio-psychological perspective by connecting attitude with behavior, and defined attitude as "the individual's positive or negative evaluation of performing the particular behaviour of interest" (p. 117). The links between attitude and behavior led to much investigation in the field of language learning with the focus on the relationship between attitude and language achievement or performance (Bailey, Onwuegbuzie & Daley 2000; Cheng, 2001; Piniel, 2006). Although in Gardner's (1985) idea we can identify a relationship between attitude and behavior, he does not believe that this link should be necessarily direct. On the other hand, Fazio (1990), and Tesser & Shaffer (1990) disputed the inclusion of behavior in their definitions of attitude. Some scholars like Baker (1992) also warned readers about using behavior for measuring language attitudes as "to ignore the accumulated experiences that are captured in attitudes and concentrate solely on external behaviour is unjustified" (p. 16).

The social dimension of attitude is important as it is not possible to enclose language learning to the classroom (Young, 1994). In addition, interaction, as a social element, is another vital factor as Oppenheim (1992) put it "attitudes are acquired or modified by absorbing or reacting to the attitudes of others." (p. 178)

Cognitive, affective and conative are three constituents of the model proposed by Baker in 1992. In his model, the cognitive constituent is related to thoughts and beliefs; the affective refers to feelings and emotions; and the conative component deals with behavioral intention. Social psychologists (Ajzen, 1988; Böhner, 2001; Oppenheim,

1992; Rosenberg & Hovland, 1960) are much interested in Baker's conceptualized hierarchical model of attitude.

Young (1994) offered another model for the concept of *attitude* in line with Gardner's (1985) socio-educational model. Young's model comprised three concepts of needs, goal, and desire. In her model, learner's needs are the beginning of a certain attitudinal state which have effects on the goal formation and eventually will be filtered by the power of their desire. Thus, Young's needs-based model (1994) is in contradiction with Chamber (1999) and Gardner's (1985) value-based models.

In Gardner & Lambert's (1972) categorization, language-learning attitude classification is based on aspects related to: a) the target-language community, b) the learning of a particular language, and c) language learning in general. In line with his socio-educational model of language learning, Gardner (1985) categorized attitudes towards foreign language learning resting on two key elements of social and educational attitudes. "Within this model, his view of motivation, and of attitudes within this, is based on the notions of instrumentality and integrativeness" (Bartram, 2010, p. 38). According to this model, a language learner will have a positive attitude towards language learning if they enjoy integrative attitude. In contrast, the attitude of an instrumentally motivated language learner is completely based on the consequence of the learning process like obtaining a qualification, achieving a better career, etc.; however, some researchers found this bipartite perspective as an oversimplified model (Baker, 1992; Deci & Ryan, 1995; Dörnyei, 1998; McPake, Johnstone, Low & Lyall, 1999; Oxford & Sheerin, 1994; Young, 1994).

Individual traits like personality, cognitive style, intelligence, aptitude and learner age (Young, 1994) are decisive determinants influencing attitudes towards language learning. Moreover, another indispensable influential variable in language learning attitude is learner's ability (Burstall, Cohen, Hargreaves & Jamieson, 1974; Oller & Perkins, 1978).

Many scholars highlighted gender as a crucial factor influencing attitude (Al-Emran, Elsherif & Shaalan, 2016; Cavus, 2011; Tafazoli et al., 2018; Uzunboylu, Cavus & Ercag, 2009; Wang, Wu & Wang, 2009; Yang, 2012), while the relationship between age and language attitude has also been investigated (Al-Emran et al., 2016; Öz, 2015; Tafazoli et al., 2018). In this light, Gardner (1985) stated that "attitudes towards learning a second language become less positive with age" (p. 44).

In the sociocultural and educational model of attitude towards language learning, the emphasis would be on contextual determinants. To Baker (1992) contextual elements are significant as "attitude appears more strongly connected with the environmental variables than individual attributes" (p. 68).

Educational factors should be considered as another influential determinant in learners' attitude towards language learning. These factors could be categorized as: a) teacher-related influence, b) school-related influence, and c) national/state curriculum policy influence.

The first category, teacher, plays an important role in the attitude formation of language learners (Clark & Trafford, 1995; Nikolov, 1998; Phillips & Filmer-Sankey, 1993). As Chambers (1999) put it "again and again, the teacher is named as the reason, for example, why they like/dislike German, why their learning experience has improved/deteriorated. The teaching methodology, the textbook, the computers available count for little if the teacher-pupil relationship is lacking" (p. 137). Wright's (1999) statement is consistent with Chambers's in the idea that "teachers are viewed by pupils as being influential agents in the forming of learners' attitudes" (p. 207).

The second category is associated with school-related influence on attitude. This category contains some sub-categories, including pedagogical practices, learning activities, assessment and testing, classroom facilities (like ICT tools and programs), textbook, or school ethos, among others. Literature advocates the influential role of what happens in

the classroom (Clark & Trafford, 1995; Dörnyei, 1998; Nikolov, 1998). Technology-supported classrooms contribute to the positive attitude of language learners and to the enhancement of language learning and teaching (e.g. Bebell, O' Conner, O' Dwyer & Russell, 2003; Lam, 2000; Smith, 2003; Tafazoli et al. 2018; Warschauer, 2003). On the other hand, studies also show that technology might not always be responsible for creating more positive attitudes (Bartram, 2010; Wringe, 1989).

Finally, the last category is related to the content of the curriculum. Here, different scholars highlight the impact of curriculum on language learners' attitudes (Fisher, 2001; Jiraffales, 2007; Milton & Meara, 1998; Thornton & Cajkler, 1996; Watts, 2003). As an example, McPake, Johnstone, Low & Lyall (1999) found that "self-oriented curriculum" could not satisfy language learners in Scotland, since the learners were interested in a kind of curriculum which teaches them how to communicate with foreigners and teach about foreigners' cultures." (p. 53).

When examining the formation of language attitudes from a sociocultural perspective, although a multiplicity of factors is involved, specific areas are especially significant: 1) The learner's close social environment; 2) The learner's experiences and perceptions of the target-language speakers and communities; and 3) The perceived social status of the languages learnt (Bartram, 2010).

Learners' close social environment includes parents, family, friends and peers who have significant role in shaping the attitude. Young (1994) believed that "through discussion, by encouraging participation in foreign language exchange programmes and excursions, helping the child with homework, encouraging the child to read material written in the foreign language and by making the target language country the destination for a family holiday" (p. 85). Therefore, parents play their role in either the positive or negative attitude formation of their children. Gardner (1985) also supports Young's view, and proposes two active and passive roles of parents in shaping language attitudes of their

children. In the active role, parents may collaborate with their children in the language learning process by monitoring the process, encouraging them, etc. (positive active role); or discouraging them (negative active role). On the other side, the passive role deals with parents' attitudes to the target language community. For instance, positive attitudes of Iranian parents towards Spain (Spanish speakers) would support the integrative trend of a child learning Spanish, while negative attitudes would act vice versa.

A good number of studies also show the influential role of friends and peers on language learners' attitudes (Bartram, 2006; Harmer, 2007; Oskamp & Schultz, 2005). Walqui (2000) argued that peer pressure often works against success in language learning by producing negative attitudes as a result of embarrassment or insecurity: "In second language learning, peer pressure often undermines the goals set by parents and teachers. Peer pressure often reduces the desire of the student to work towards native pronunciation, because the sounds of the target language may be regarded as strange" (p. 3). On the other hand, some studies argued the positive effects of peers and friends (Gardner & Lambert, 1972). With the arrival of the Communicative Language Teaching (CLT) approach, collaborative learning found its substantial role in language learning and teaching (Abadikhah & Mosleh, 2011; Ismail & Samad, 2010). Regarding the sociocultural theory, Vygotsky (1978) assumed speech as a vital part of human cognitive development, at the same time that language and cognitive skills evolve through interaction with people and the world. Neumann & McDonough (2015) affirmed: "interaction plays an essential role in knowledge-building by creating opportunities for learners to elicit help from experts or simply articulate steps in the problem-solving process through internal or external speech" (p. 84).

Parallel to the influence of immediate social factors, language learners' experiences and perceptions of the target-language speakers and communities could be considered as other key factors in attitude formation towards foreign or second language learning. Gardner &

Lambert (1972) believe that a negative attitude towards the target-language speakers and communities may weaken the learner's tendency to foreign or second language learning. In other words, the learner's identification of a positive attitude towards the target-language speakers and communities will affect positively language learning. As Gardner & Lambert (1972) stated: "if the student's attitude is highly ethnocentric and hostile, we have seen that no progress to speak of will be made in acquiring any aspects of the language" (p. 134). Other scholars also concur with this relationship between positive attitudes to the target-language speakers and communities and foreign language learning success (Al-Tamimi & Shuib, 2009; Eshghinejad, 2016; Momani, 2009; Shams, 2008; Suleiman, 1993). The literature in the area certainly suggests that some learners may increase their motivation and positive attitude by contacting native speakers of the target language. However, Stroinska (1998) proposed another view: "exposure to other cultures may sometimes only strengthen negative attitudes and induce the process of stereotyping" (p. 56).

Regarding the perceived social status of the languages learned, certain social factors have some relevance to learners' attitudes toward foreign or second language learning: a) the media and youth culture, b) perceptions of utility, and c) perceptions of difficulty (Bartram, 2010).

Oskamp & Schultz (2005) highlighted the significance role of media in forming attitudes "by selecting, emphasizing and interpreting... they help to structure the nature of 'reality' (…) which in turn impels the public to form attitudes" (p. 133).

From another perspective which is based on the advancement in technology integration in our daily lives, McPake, Johnstone, Low & Lyall (1999) reach to the interesting conclusion that "in Holland, (…) less time is spent in learning a modern language at primary school than we spend in Scotland. Yet Dutch children who go to secondary school have learnt at least half of their modern language outside the school system – they

pick it up from music, magazines, films, television" (p. 19). In other words, CALL has reached the stage of stability in language education; moreover, using language education software and applications have become a common social phenomenon.

The perception of usefulness is another vital element influencing learner's attitude. According to literature, language learners have more positive attitudes toward a language if they find it applicable for their daily lives (Lee, Buckland & Shaw, 1998). Eventually, the perceptions of difficulty should be considered at two levels: a) "at the level of the individual as a result of his/her own subjective evaluation of personal experience", and b) "at the level of wider society" (Bartram, 2010, p. 90). In the latter level, "perceptions refer to current views in the social world about the nature of language learning, mediated perhaps by the media, youth culture, education or the learner's immediate social environment" (Bartram, 2010, p. 90).

Literature shows that language learners found the language as a difficult school subject, but a worthwhile one (Busch, 2010; Khan, 2011). A total of 59% of learners in a study by Fisher (2001) believed that "foreign languages to be the most challenging subjects in the curriculum" (p. 35). To go deeper and find reasons for such difficulty, Phillips & Filmer-Sankey (1993) found out that French was seen to be the most difficult foreign language for learners because of its grammar, gender, spelling, vocabulary, and pronunciation. In contrast, German and Spanish were seen easier because of the pronunciation, though German grammar was difficult. Moreover, Khan (2011) stated that although English plays a vital role in Saudi Arabia in the entire system of higher education (as a medium of instruction and an important tool of communication), a variety of factors such as pronunciation, grammar, structure, vocabulary, spelling, etc. affect negatively on the learning of English.

Social psychologists believed that the success or failure in language learning may all depend on the attitudes of the learner towards the target language (Mitchell, Myles &

Marsden, 2013). As an aspect of early developmental stages of cognition and affect in human beings, attitude is the result of parents' and peers' attitudes of contact with different people with different characteristics. One's perception of self, others, and their own culture is the result of these attitudes. After studying the interrelationships of number of different types of attitudes, Gardner and Lambert (1972) defined motivation as a construct made up of certain attitudes. Mitchell, Myles and Marsden (2013) considered language attitudes like language aptitudes, language learning strategies, motivation, self-confidence, anxiety and willingness to communicate as a difference between individual learners. Lightbown & Spada (2006) account attitude as one of the two factors that define motivation. Several large-scale studies have been conducted by Oller and his colleagues which were to find the relationship between attitudes and language success in Chinese, Japanese and Mexican students (Chihara & Oller, 1978; Oller, Baca & Vigil, 1978; Oller, Hudson & Liu, 1977). Brown (2007) believes that positive attitudes are beneficiary for second language learners, at the same time that negative attitudes may decrease motivation. However, empirical research has shown that favorable attitude is not a sole key and a strong predictor of achievement in language success, unless accompanied by active engagement and learning effort (Masgoret & Gardner, 2003).

Another point of view proposed by Lightbown and Spada (2006) stated that there is difficulty in understanding whether "positive attitudes produce successful learning or successful learning engenders positive attitudes", or the effective factors are others" (p. 63). They believed that if learners have positive attitudes towards the speakers of the target language, they may have more willingness to contact with them.

Research also showed that attitude is a vital factor in achieving success in language learning (Ellis, 1997; Gardner, 1985; Shameem, 2015; Tafazoli et al., 2018). Among the number of factors which may affect language learning, researchers confirmed that attitude is even more significant and effective than aptitude (Gardner & Lambert, 1972; Lambert,

1981; Raymond & Roberts, 1983). Brown (1987) noted that negative attitudes can negatively affect success in language learning.

Statement of the Problem

Technology has effectively modified our personal and professional lives. In such a revolutionary digitalized world, both teachers and learners are urged to build up their knowledge in nonlinear settings hindered by different digital tools and devices. Martin & Grudziecki, (2006) even go further by stating that "it would be wrong to think that we live in the Digital Society (…) We have made the Information Society and the Digital Age for ourselves" (p. 249).

Nowadays, virtual environments have devised our real learning environments in which casual writing and speaking is preferable to formal (Hampel & Hauck, 2006). Moreover, Kress & van Leeuwen (2001) mentioned that the "new technologies' emphasis on multimodality, three-dimensionality and interactivity can be seen as a return of many of the things that were lost in the transition from 'orality' to 'literacy'" (p. 92). Hence, these new learning environments lead us to revise the term "literacy".

There is a considerable amount of research that tackles to appraise Computer-Assisted Language Learning (CALL) and its programs from a variety of aspects (e.g. Hsie, Wu & Marek, 2017; Ma, 2017; Mei, Brown & Teo, 2017; Rienties, Lewis, McFarlane, Nguyen & Toetenel, 2018; Shadiev, Hwang & Huang, 2017; Xu & Peng, 2017). The literature shows that most of the research studies on CALL concentrate on the applied tools and devices, learning tasks, and learners – who are the end users of CALL (Chapelle, 2003). However, only two paper presentations (Tafazoli, 2014; Tafazoli & Gómez, 2017) and one workshop (Tafazoli, 2017) dealt with the critical concept of CALL literacy. Researchers believed that the ultimate goal of CALL is not only to decorating and furnishing the classrooms with different technology-based tools by educational

administrators, but to provide an appropriate setting which facilitates language learning (Tafazoli et al., 2018), in order to empower teachers' and learners' literacy. Therefore, considering product end-users' CALL literacy should be another role of educational scholars and researchers. The more CALL literate students and teachers, the more appropriate applications they will have to use CALL.

Significance of the Study

Scholars in language teaching and learning acknowledge that many elements should be combined for a successful utilization of technology for language education (Hubbard & Levy, 2006; Kassen, Lavine, Murphy-Judy & Peters, 2007; Kessler, 2010; Son, Robb & Charismiadji, 2011). Some elements might be more critical than others but if any of them fails, the utilization will be impaired. Much of previous research on the merits and barriers of Computer-Assisted Language Learning (CALL) highlighted the 'availability of CALL resources' as a common justification for sparse utilization of CALL (Tafazoli, 2015). However, CALL software, tools, and programs are widely available for language teachers and learners around the world – although the amount might be diverse in different countries. Regardless of several positive facets of CALL, it still attempts to act a functional role in language education.

The literature shows that CALL utilization has been explored from different perspectives. A number of research have studied teachers' competencies in the implementation of CALL, and found out the reasons why some CALL tools and programs are more frequent than others (Golshan & Tafazoli, 2014; Hubbard & Levy, 2006; Mumtaz, 2000; Son et al., 2011). Moreover, a number of studies have investigated the way teachers and students implement CALL tools in their classrooms (Eubanks, Yeh & Tseng, 2018; Henry, Carroll, Cunliffe & Kop, 2018; Jin, 2018; Schulze & Scholz, 2018; Yang, 2018). Although, many scholars have addressed teachers' and students' attitudes towards CALL (e.g. Heflin,

Shewmaker & Nguyen, 2017; Lam, 2000; Lin, Warschauer & Blake, 2016; Lintunen, Mutta & Pelttari, 2017; Riemer & Schrader, 2015; Wright, 2017), a thorough scrutiny of the literature shows that most of prior studies on attitudes towards CALL is explored within a particular culture and context. In spite of the profound information in CALL gained over the review of literature, no study, to our best knowledge, has qualitatively explored the attitudes and perceptions of language teachers in large-scale in two different cultural settings.

There is a claim that educational improvement can be obtained through methods gathered from comparative education research study (Stigler & Hiebert, 1999). A cross-cultural study is a kind of comparative study which looks at two or more different societies and cultures. Moreover, cross-cultural research has been incredibly valuable for psychological traits (Matsumoto & Yoo, 2006). Another perspective which emphasizes the importance of cross-cultural studies is the compatibility of the same product with two different societies and cultures. Researchers believe that applying the findings of other societies, communities, and cultures does not have to bring the same results into the target context.

A considerable amount of research has proved the appropriateness and efficiency of CALL in Western and Eastern countries. However, it does not have to provide identical results for other cultures. CALL literacy and the attitudes of teachers and students have the same position. The study might show the positive or negative results of a phenomenon, but localizing that phenomenon within another cultural context, with different beliefs, attitudes, perceptions and facilities might lead to different findings. There is also the challenge of cultural issues in the context of CALL, which are not frequently addressed and discussed in foreign language learning and teaching (Tafazoli, Gómez & Huertas, 2018b). Thus, cross-cultural understanding has emerged as a fundamental element of a country's cultural, technological, economic and political

welfare (Bartell, 2003; Bernáld, Cajander, Daniels & Laxer, 2011; Shadiev, Hwang & Huang, 2015).

This study is different from prior studies related to CALL in which it is not only studied the new concept of CALL literacy, but it also examined this concept in two different contexts: Spain and Iran. Furthermore, it investigated the attitudes of language teachers and students towards CALL in these two contexts.

Purpose of the Research

This study starts with a deep review of literature on Computer-Assisted Language Learning (CALL). The main goal of this study is not only to assess CALL literacy of the Iranian and Spanish language teachers and students, but also to compare their attitudes towards CALL. On the whole, it aims to know if there are differences between Iranian and Spanish English language students' and teachers' on CALL literacy, as well as to explore their attitudes towards CALL.

The followings are the main and specific objectives of the study:

Main Objective (O1): To know if there are differences between Iranian and Spanish English language students' and teachers' on CALL literacy and their attitudes towards CALL.

Specific Objectives:

O.1.1. To know if there are differences between Iranian and Spanish English language students and teachers' CALL literacy.

O.1.2. To know if there are differences between Iranian and Spanish English language students' attitudes towards CALL.

O.1.3. To know if there are differences between Iranian and Spanish English language students' attitudes towards CALL based on gender.

O.1.4. To know if there are differences between Iranian and Spanish English language students' attitudes towards CALL based on education level.

O.1.5. To know if there are differences between Iranian and Spanish English language students' attitudes towards CALL based on age.

O.1.6. To know if there is a relationship between Iranian and Spanish English language students and teachers' CALL literacy and attitudes towards CALL.

Research Questions

The research tries to provide informed answers for the following research questions:

RQ1. Are there any differences between Iranian and Spanish English language students and teachers' CALL literacy?

RQ2. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL?

RQ3. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL based on gender?

RQ4. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL based on education level?

RQ5. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL based on age?

RQ6. Is there any relationship between Iranian and Spanish English language students and teachers' CALL literacy and attitudes towards CALL?

Assumptions

The followings are the assumptions of the study:

1. Participating language teachers and students responded accurately and honestly to the questionnaire.
2. According to our literature review and the Delphi method applied to it, the questionnaire used demonstrated to be a reliable instrument for measuring attitudes of both students and teachers towards CALL.

(De)limitations of the Study

The (de)limitations of this study are as follows:

1. Extraneous variables such as the number of participants, honesty and openness of participants may affect the generalizability of the study.
2. The questionnaire addresses general attitudes of teachers and students towards CALL, but not a specific CALL tool.
3. The study reflects only English language teachers' and students' CALL literacy and their attitudes.

Structure of the Dissertation

The first section of this Dissertation ('Introduction') begins with a general view on the role of technology in our lives, followed by its influence on professional careers. Then, a brief historical review on Computer-Assisted Language Learning (CALL), definitions, and terminologies can be found. Next is a summary of attitude and its potentiality in language learning and teaching. This section is followed by a thorough theoretical background on attitude from social, cognitive, and affective point of views. Then, the researcher has examined the related literature dealing with the relationship between

attitude and language learning and teaching. Herein, statement of the problem, significance of the study, purpose of the research (which includes main and specific objectives), research questions, assumptions, (de)limitations of the study, definition of key terms, acronyms and references are included.

The second section is the first published paper included in the review of the literature of this Dissertation cited as "Tafazoli, D., Huertas Abril, C., & Gómez Parra, Mª. E. (2019). Technology-based review on computer-assisted language learning: A chronological perspective. *Pixel-Bit: Revista de Medios y Educación, 54*, 8-21." The main focus of this published paper is to review the advancement of technologies in CALL from a historical perspective. This review starts by defining CALL and its related terminology, highlighting its first attempts in 1950s and 1960s, and then moving to other decades of mainframes and microcomputers. As the final step, emerging technologies in 21st century, has been presented.

The third section of this Dissertation is the second published paper cited as "Tafazoli, D., Gómez Parra, Mª. E., & Huertas Abril, C., (2017). Computer literacy: Sine qua non for digital age of language learning & teaching. *Theory and Practice in Language Studies, 7*(9), 716-722". In this paper, the researchers highlighted the key role of computer literacy in language teaching and learning for both teachers and students. They claim that the literate teacher and learner are the ones who can use different technologies as educational devices in both teaching and learning processes. This paper also reviews the related literature on new literacies, as well as the relationships between computer/electronic literacy and language learning and teaching.

Regarding the methodology chapter of this Dissertation, the next part is a published book chapter cited as 'Tafazoli, D., Gómez Parra, M. E. & Huertas Abril, C. A. (2018). Developing and validating a questionnaire to measure CALL literacy. In M. E. Gómez Parra & R. Johnstone (Eds.), *Nuevas Perspectivas en Educatión Bilingüe: Investigación*

e Innovación (pp. 333-343). Granada, Spain: Editorial Universidad de Granada." As a key element of each research, this book chapter investigates the development and validation of a CALL literacy questionnaire, one of the instruments of the current cross-cultural study. The researchers explain the methods and procedures.

The fifth part is the first analysis of the collected qualitative data from the participants, both language teachers and students from Spain and Iran, accepted to be published as a paper cited as Tafazoli, D., Huertas Abril, C.A., & Gómez Parra, Mª. E. (2018). Análisis DAFO de las actitudes y percepciones de profesorado y alumnado de inglés como lengua extranjera hacia el aprendizaje de idiomas asistido por ordenador: estudio intercultural en Irán y España. *Futhark, 13.*

Section six of this Dissertation is a paper titled "Attitude towards computer-assisted language learning: Do gender, age, and educational level matter?" which is under review by *Teaching English with Technology Journal*, whose purpose is to explore the relationships of second and foreign language teachers' and students' attitudes towards CALL in terms of their gender, age group, and educational level in two countries, Spain and Iran. The findings of the study revealed that there is no difference between the attitudes of Iranian and Spanish towards CALL in terms of gender, age and educational matter.

The purpose of the next section, an unpublished paper titled "A qualitative SWOT analysis of language teachers' attitudes and perceptions towards computer-assisted language learning: A cross-cultural study in Iran and Spain" which is under review by *International Journal of Information and Communication Technology Education (IJICTE)*, is to explore the strengths, opportunities, weaknesses, and threats of CALL based on language teachers' attitudes and perceptions in Iran and Spain, as well as the existent differences between these two contexts. Moreover, this paper aims to categorize the attitudes and perceptions of the participants regarding CALL teacher education,

educational contexts, and individual teacher factors. Collected data were analyzed through a SWOT matrix. Then, statistical analysis (which included content analysis of qualitative data) was applied to classify data and align them into the SWOT matrix.

In the next section which is another unpublished paper titled "A cross-cultural study on Iranian and Spanish language students' attitudes and perceptions towards computer-assisted language learning: A qualitative SWOT analysis" which is under-review by *The Qualitative Report*, the researchers explore the strengths, opportunities, weaknesses, and threats of CALL based on language students' attitudes and perceptions in Iran and Spain, as well as the existent differences between these two contexts by using a SWOT matrix.

The ninth section of this Dissertation, an under-review paper titled "Computer-assisted language learning literacy: A cross-cultural study on Iranian and Spanish language teachers and students" by *Nordic Journal of Digital Literacy*, is an attempt to investigate the current level of CALL literacy of language teachers and students in Iran and Spain. Moreover, the relationships between CALL literacy and participants' nationality, age, and educational level are investigated. The findings of this study revealed that there is no difference between CALL literacy of language teachers and students in terms of their nationality, age and educational levels. Interestingly though, the findings revealed that MA and PhD students were more CALL literate than BA students.

Finally, in the Conclusions section, the researcher reviewed analyzed research questions and archived responses, from which related pedagogical implications of the study arise. Then, he suggested further potential research possibilities in the field. In the final section of this Dissertation, identified limitations of the study followed by the references are presented.

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2. Study 1: Technology-Based Review on Computer-Assisted Language Learning: A Chronological Perspective / Revisión tecnológica del aprendizaje de idiomas asistido por ordenador: una perspectiva cronológica

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Technology-Based Review on Computer-Assisted Language Learning: A Chronological Perspective

Revisión tecnológica del aprendizaje de idiomas asistido por ordenador: una perspectiva cronológica

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RESUMEN

El presente artículo aborda la evolución y el avance de las tecnologías del aprendizaje de lenguas asistido por ordenador (CALL por sus siglas en inglés, que corresponden a *Computer-Assisted Language Learning*) desde una perspectiva histórica. Esta revisión de la literatura sobre tecnologías del aprendizaje de lenguas asistido por ordenador comienza con la definición del concepto de CALL y otros términos relacionados, entre los que podemos destacar CAI, CAL, CALI, CALICO, CALT, CAT, CBT, CMC o CMI, para posteriormente analizar las primeras iniciativas de implementación del aprendizaje de lenguas asistido por ordenador en las décadas de 1950 y 1960, avanzando posteriormente a las décadas de las computadoras centrales y las microcomputadoras. En última instancia, se revisan las tecnologías emergentes en el siglo XXI, especialmente tras la irrupción de Internet, donde se presentan el impacto del e-learning, b-learning, las tecnologías de la Web 2.0, las redes sociales e incluso el aprendizaje de lenguas asistido por robots

PALABRAS CLAVE

aprendizaje de lenguas asistido por ordenador; CALL; computadoras centrales; microcomputadoras; tecnologías emergentes.

ABSTRACT

The main focus of this paper is on the advancement of technologies in Computer-Assisted Language Learning (CALL) from a historical perspective. The review starts by defining CALL and its related terminology, highlighting the first CALL attempts in 1950s and 1960s, and then moving to other decades of mainframes and microcomputers. At the final step, emerging technologies in 21st century will be reviewed

KEYWORDS

Computer-Assisted Language Learning (CALL); Mainframe; Microcomputers; Emerging technologies

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1.- Introduction

At the first stage of this comprehensive review, it is necessary to define Computer-Assisted Language Learning (CALL). Beatty (2010) defined CALL as "any progress in which a learner uses a computer and, as a result, improves his or her language" (p. 7). Changing from simple CD-ROMs to virtual reality in computer science shows the evolving nature of computers and technology which made Beatty (2010) to consider CALL as a vague, unstructured discipline. Moreover, the emergence of new literacies like electronic literacy, multimedia literacy, etc. warn teachers and learners to equip themselves with new technologies and literacies to meet the requirements of 21st century citizenship.

It is considered that CALL was first used by Davies and Steel (1981) in a conference paper, and the term was widespread in the UK a year later, in 1982. This same year, Ealing College of Higher Education published the CALL-related newsletter titled "CALLBOARD". Furthermore, in 1983, TESOL started up CALL Special Interest Group (Kenner, 1996; Stevens, 2003) which was a big move in the field. Although the exact date of the appearance of CALL term is not completely clear (Davies, Otto, & Rüschoff, 2013), different terms are appeared in the literature of applications of technology in pedagogy. *Computer-Aided Instruction* (CAI) refers to learning at the computer in which there is no necessity in language education, also, the word 'instruction' refers to a teacher-centered approach. *Computer-Assisted Learning* (CAL) is similar to CAI, but the focus in on learners. *Computer-Assisted Language Instruction* (CALI) was incorporated into the name of the professional association Computer-Assisted Language Instructed Consortium (CALICO).

In contrast to CAI and CALI, the emphasis of *Computer-Assisted Language Learning* (CALL) is on learning rather than instruction, therefore, it is reflecting a student-centered approach rather than a teacher-centered one. *Computer-Assisted Language Teaching* (CALT) is another term which in contrast to CAL emphasizes the teachers. *Computer-Assisted Teaching* (CAT) is learning any subject at the computer. *Computer-Based Training* (CBT) refers to a program used for teaching of some discrete language learning skills. *Computer-Mediated Communication* (CMC) is a computer-based discussion environment in which learners need to communicate with native speakers of the target language. *Computer-Mediated Instruction* (CMI) is the application of some form of computer software or hardware in instruction in which learning takes place when a learner communicate with a distant tutor. Like CAI, instruction in this term shows a

teacher-centered approach. *Intelligent Computer-Assisted Language Learning* (ICALL) is a software-based program which provides learners with customized feedback based on their performances. *Technology-Enhanced Language* (TELL), as an alternative term to CALL which appeared in 1980s, is any applications of technology in the classroom. Finally, *Web-Enhanced Language Learning (*WELL) refers to CALL in which the internet is the medium for instruction.

Several scholars in the field (Davies, 1997; Levy, 1997; Sanders, 1995) tried to review the history of CALL from different perspectives. Warschauer (1996), Warschauer and Healey (1998), Bax (2003) and Rahimpour (2011) reviewed CALL and classified them based on underlying pedagogical and methodological approaches. Fotos and Browne (2004) reviewed the emergence of CALL and its application by considering the historical context of computers together with their changing role in second language (p. 3). Davies, Otto, and Rüschoff (2013) considered both approaches and technology-based devices and programs in CALL. Beatty's (2010) book provides a brief history of CALL from a comparative perspective of behaviourist and constructivist design features. The focus of this review is on the advancement of technologies in the field of CALL from a chronological perspective.

2.- History of CALL

2.1.- Early CALL and Mainframes: 1950s and 1960s

The USA was the pioneer country in early days of CALL. In 1950s, the prominence of teaching language for military purposes in competent and scientific ways led to the application of huge and high-priced mainframes, as the first application of computers in language learning being available at universities. In competition with USSR in Cold War (1945-1991), the first CALL programs were developed at Stanford University, Dartmouth University and the University of Essex in order to teach Russian as a foreign language (Ahmad, Corbett, Rogers, & Sussex, 1985). Among the early mainframe-based programs, which were served as tutor and drillmaster, the PLATO (Hart, 1995) and TICCIT projects (Anderson, 1976; Jones, 1995) were the highest profile ones (Davies, Otto, & Rüschoff, 2013).

Programmed Logic/Learning for Automated Teaching Operations (PLATO) system, developed by the University of Illinois in 1959, was one of the first and most important CALL systems in teaching Russian by using the grammar translation approach (Merrill, Hammons, Vincent, Reynolds, Christensen, &

Tolman, 1996). The main and early focus of PLATO was on translating Russian texts; later, in the early 1970s, Curtin and his colleagues added "grammar explanations, vocabulary drills and other drills and translation tests over a course of 16 lessons requiring 70 hours to complete" (Beatty, 2010, pp. 20-21). Davies, Otto, and Rüschoff (2013) counted different features for the last PLATO system, PLATO IV, such as "the plasma graphics terminals, multimedia capability using a computer-controlled audio device, the touch-screen input option, centralized storage and delivery of large amounts of instructional material and an online community space" (p. 21). As the PLATO presented some up-to-dated features like feedback, spelling and grammar-checkers, it could be called 'intelligent CALL' (ICALL).

2.2.- Microcomputers: 1970s and 1980s

Throughout the 1970s and 1980s, high-end mainframe computers were still available for CALL research. In 1972, the University of Texas and Brigham Young University (BYU), in cooperation with Mitre Corporation, started to develop instructional materials for English and Mathematics. To meet this end, they launched 'Time-shared Interactive Computer Controlled Information Television' (TICCIT), the mixture of computer and television technologies (Davies, Otto, & Rüschoff, 2013). The innovative aspect of this project was the fact that TICCIT did not prescribe the learner's pathway (e.g. learners could move freely through the courseware). Moreover, Boyle, Smith and Eckert (1976) developed a computer-based diagnostic test for French language on a mainframe computer (Chapelle, 2001).

Still the US was the dominant country for CALL activities. Olsen's (1980) report on CAI in foreign languages showed that over 60 language departments from 52 institutions in 24 states were using computers for language education. However, little activity in CALL was reported by Rex Last in the late 1970s at the University of Hull in the UK.

In that decade, one of the main focus of CALL research was on videodisc technology, which enabled computers to go beyond textual exercise. The CALL research stream moved to a smaller and more convenient format called Compact Disk Read-Only Memory (CD-ROM), and then forwarded to DVD – the larger volume media DVD (Beatty, 2010). Bush and Crotty (1991) counted advantages of videodisc in comparison to traditional instruction: a) more meaningful, b) an understandable context with many extralinguistic clues, and c) empower student's problem-solving skill (pp. 86-87). Macario, Montevidisco and Interactive Dígame were three early examples of videodisc technology (see Gale, 1989).

The 1980s was the shining period of CALL in which many great publications were released (Ahmad, Corbett, Rogers, & Sussex, 1985; Davies & Higgins, 1982; Davies & Higgins, 1985; Higgins & Johns, 1984; Hope, Taylor, & Pusack, 1984; Kenning & Kenning, 1984; Last, 1984). Furthermore, the emergence of microcomputers influenced the position of CALL in that decade, and two professional associations were founded: CALICO in the USA (1982), and EUROCALL in Europe (1986). CALL programs moved from some specific universities and institutes to into primary and secondary schools. The 'Apfeldeutsch' was the first complete CALL package for microcomputers (Williams, Davies, & Williams, 1981).

In 1983, the MIT funded a five-year project in contribution with Digital Equipment Corporation (DEC) and International Business Machines (IBM) called 'The Athena Language-Learning Project (ALLP)' in order to investigate the role of the computer in education (McConnell, 1994). ALLP benefited from UNiversal Interactive eXecutive (UNIX) (or UNiversal Inter-eXchange or UNIversity eXchange) workstations, which were "connected to each other and to textual and visual databases through a Local Area Network (LAN)" (Beatty, 2010, p. 29). Murray, Morgenstern and Furstenberg (1989) indicated three advantages of the ALLP system: 1) the encyclopedic information usually associated with print that can be recalled with the speed of the computer; 2) the extensive models of the language provided by multiple speakers usually associated with television or film materials; and 3) the engagement of interactivity usually associated with more primitive drill-and-practice routines (Murray, Morgenstern, & Furstenberg, 1989, p. 101). Other successful CALL programs in that decade were two videodisc-based simulation projects: *No Recuerdos* and *À la rencontre de Phillippe* (see Beatty, 2010).

In 1984, Apple Computer developed materials authoring program called *HyperCard*. This program was one of the innovations in the Macintosh environment. *HyperCard* was among the first programs which rooted theoretically in hypertext and hypermedia capabilities, in which text, images, audio, animations and video can be added to a set of virtual index cards (Beatty, 2010).

In the mid of 1980s, ICALL started to show off in CLEF (1985) and TUCO II programs (Taylor, 1987). These programs provided learners with "extensive tutorial sequences, discrete error analysis and feedback" (Davies, Otto, & Rüschoff, 2013). Applying artificial intelligence (AI), semantic and syntactic parsers, natural language processing (NLP) in combination with microcomputers and shifting from drill-and-

practice to communicative competence led to the development of the Spanish game *Juegos Comunicativos* (Bassein & Underwood, 1985) and the German game *Spion* (Sanders & Sanders, 1995). The production of text-only simulations (i.e. Granville: The Prize Holiday Package, Cambridge University Press, 1986; London Adventure, British Council and Cambridge University Press, 1986) is another development in CALL software. The advent of Information and Communication Technology (ICT) in education arouse the use of concordancers in the language classrooms – Data-Driven Learning (DDL). This discovery-oriented approach was a great assist in learning and teaching grammar and vocabulary (Johns & King, 1991).

Davies, Otto and Rüschoff (2013) believed that the major shortcoming of that time was that "microcomputers did not have the capability of recording and playing back sound" (p. 28). To solve the problem, around 1988 and by the advent of sound cards, a new development happened by adapting 'truly interactive digital sound-enhanced CALL software' (Davies, Otto, & Rüschoff, p. 29).

2.3.- Multimedia PCs & the Internet: 1990s

CALL development in the 1990s began with the advent of multimedia PCs. This advancement in ICT and computer science changed the face of drill-and-practice programs to more communicative ones. 'Talking Books' CD-ROMs became popular by launching the first program *Just Grandma and Me* in 1992 which was the combination of text and sound in three languages. Simulations on CD-ROM such as *Nuevos Destinos* (Blake, McGraw-Hill College & WGBH/ Boston, 1993), and *Who is Oscar Lake?* in 1995 became dominant CALL programs.

CD-ROMs-based programs like *Encounter Series* in 1997, Triple Play (later renamed Smart Start), *Talk to Me* and *Tell me More* series provided different learning opportunities for students by engaging them in listening and responding activities (Davies, Otto, & Rüschoff, 2013).

Davies, Otto, and Rüschoff (2013) believed that the "appearance of World Wide Web is probably the most significant development in ICT during the last 30 years" (p. 31). Natured in drill-and-practice activities, *Hot Potatoes* is an example of web-based interactive authoring tools includes different activities like multiple choice, gap-filling, crosswords, etc. (Arneil & Holmes, 1998-2009).

New terms, tools, and CALL-related developments like 'e-learning', 'online learning' and virtual learning environments (VLEs) provided with different teaching and learning opportunities both languages teacher and learners, also facilitating teacher-learner and peer-to-peer communication. In the late 1990s, the UK Open University delivered a wide range of courses via Moodle – an open-source VLE. By the development of the Internet and its speed, new applications emerged for language learning and teaching. Among them, Multi-User Domains (MUDs) and Multi-user-domains Object Oriented (MOOs) were two of the most popular ones. To get better understanding, "MUDs were originally designed as text-based, role-playing adventure games to be engaged in across computer networks but they also offered opportunities for collaboration and education, including language learning" (Davies, Otto, & Rüschoff, 2013). Concerning MOOs, language learners (players) log into a MOO and communicate with other learners either synchronously or asynchronously (Shield, 2003; Von der Emde, Schneider, & Kötter, 2001). Virtual worlds or multi-user virtual environment (MUVEs) are virtual environments in which language learners act in 3D environments (Sadler & Dooly, 2013; Svenson, 2003).

2.4.- Emerging Technologies: the 21st century

Integration of technology in our 21st-century daily lives has changed the form of CALL programs.

Different commercial entities, governmental and non-governmental entities, universities and institutes began to offer complete language courses on the Internet, as software, mobile applications, etc. Drawback of e-learning led to the coinage of a new term called 'blended learning', a combination of both online and face-to-face interactions. Web 2.0 technologies gained popularity from 2004, providing different learning opportunities for language learners through socializing with native speakers of target language via social networking sites and applications like MySpace and Facebook. Web 2.0 is a "social platform for collaboration, knowledge sharing and networking" (Davies, Otto, & Rüschoff, 2013, p. 32). Different web-based communities such as discussion lists, blogs (Yim & Warschauer, 2017), wikis (Wang, 2014), podcasts (Thomas, 2009), vodcasst (Sadeghi & Ghorbani, 2017), social networking sites (SNS), and social media tools (Barnes, 2017; Chen, 2013), among others, are the consequence of web 2.0 technology.

Recently, the advent of mobile and portable devices like smartphones and laptops, and the widespread availability of them has led to the coinage of a new term called Mobile-Assisted Language Learning (MALL). Although some scholars believed that MALL differs from CALL (Kukulska-Hulme & Shield,

2008), the authors of this paper see MALL as a subcategory of CALL. A good number of studies showed the usefulness and effectiveness of portable devices in language learning and teaching: mobile phones (Xu & Peng, 2017), tablet PCs (Chen, Carger, & Smith, 2017), and MP3 players (Demouy & Kukulska-Hulme, 2010), etc. Moreover, different applications of mobile phones functions and capabilities are also reported by different scholars: video recording (Gromik, 2012), GPS (Sandberg, Maris, & de Geus, 2011), QR (Quick Response) codes (Rivers, 2009), short message system (SMS) (Kennedy & Levy, 2008). In spite of the affordances of MALL (Reinders & White, 2010), some challenges and limitations are also reported (Reinders & Hubbard, 2013).

Finally, emerging technologies like new gaming platforms, including massively multiplayer online role-playing games (MMORPGs) (Sourmelis, Ioannou, & Zaphiris, 2017), virtual realities (Badilla Quintana, Vera Sagredo, & Lytras, 2017), second life (Melchor-Couto, 2017; Akayoglu & Seferoglu, 2017), robot-assisted language learning (RALL) (Han, 2012, Fridin & Belokopytov, 2014; Tafazoli & Gómez Parra, 2017) are other new dimensions of CALL faces.

3.- Conclusion

There is no doubt that Information and Communication Technologies (ICT) impact on the way languages are being taught and learned. It can now be argued that Computer-Assisted Language Learning (CALL) is a middle-aged multidisciplinary field with a lot of experiences from different parts of the world (Warschauer, 2013). In view of the advancement, it can be said that CALL has reached the stage of stability in language education; moreover, using language education software and applications have become a common social phenomenon. In order to plan and implement technology successfully in language education classes, however, teachers and learners should clarify their goals. In addition, all the complexities and difficulties, e.g. cultural, structural and infrastructural, of integration of education into syllabus should be considered (Warschauer & Whittaker, 1997). Finally, we would like to warn both language teachers and learners about the 'technology's double face' (Saeedi, 2013). We should consider that, CALL as a pedagogical phenomenon has its own merits and demerits. Language teachers and learners should avoid 'technocentrism'. As Papert (1987) put it "when we talk about computers in education, we should not think about a machine having an effect. We should be talking about the opportunity offered us" (p. 22).

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3. Study 2: Computer Literacy: Sine Qua Non for Digital Age of Language Learning & Teaching

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Computer Literacy: Sine Qua Non for Digital Age of Language Learning & Teaching

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***Abstract*—With the widespread and development of Information and Communication Technology (ICT) in our daily lives, technology provides numerous opportunities and challenges for language teachers and learners. The popularity of learning a foreign language and integrating technology for educational purposes showed the demand for computer or electronic literacy for both language teachers and learners. The literate teacher and learner is the one who can use different technologies as educational devices in their teaching and learning processes. This paper reviews the related literature on new literacies, as well as the relationships between computer/electronic literacy and language learning and teaching.**

***Index Terms*—literacy, computer literacy, electronic literacy, language learning and teaching, digital world**

I. Introduction

Our new digital tools play important roles in our daily lives. Portable devices like cell phones transfer text and multimedia messages, connect us to the Internet, provide visual contacts, allow us to check our emails, enter the chat rooms, surf the websites, blogs, wikis, and discussion forums, and learn from MOOCs. By these digital tools individuals even can change their authorship, identity, community, etc.

Today's in our evolving digital world, we depend upon an augmented knowledge and skills. This digitalized world obliges learners and teachers to formulate knowledge in nonlinear settings mediated by different digital tools and devices. "… it would be wrong to think that we live in The Digital Society… We have made the Information Society and the Digital Age for ourselves" (Martin & Grudziecki, 2006, p. 249).

Our real communication environment has changed to today's virtual environment in which casual writing and speaking is superior to formal (Hampel & Hauck, 2006). Kress and van Leeuwen (2001) mentioned that the "new technologies' emphasis on multimodality, three-dimensionality, and interactivity can be seen as a return of many of the things that were lost in the transition from 'orality' to 'literacy'" (p. 92).

To define "literacy", we have to consider learning changes based on world changes. Different models have been proposed for defining literacy (Bélisle, 2006): (1) The functional model considers literacy as the proficiency of simple cognitive and practical skills, from the least complex idea of literacy as mechanical skills (that is, reading and writing) to the most developed approaches (UNESCO, 2006). (2) The socio-cultural practice model deals with the fact that literacy is only significant in a social context given, and consequently to be literate is to have access to the different cultural, economic and political structures of society (Street, 1984). (3) The intellectual empowerment model states that "literacy can bring about the transformation of thinking capacities, particularly when new cognitive tools, such as writing, or new processing tools, such as those relying on digital technology, are developed" (Martin & Grudziecki, 2006, p. 250).

Dudeney, Hockly and Pegrum (2013) counted 21st-century skills, for which these authors highlighted skills like creativity and innovation, collaboration and teamwork, critical thinking, problem-solving, autonomy, flexibility, and lifelong learning. This set of new skills needs another key factor which is an ability to interpret, manage, share and create meaning in the growing range of digital communication channels which is called digital literacy or computer literacy. The leaders believed that all the people should know something about computers. The meaning of computer literacy has changed over time, and the specific definition has never been clear. Basically, computer literacy means a level of understanding which enables students to talk about computers. Son, Robb and Charismiadji (2011) defined 'computer literacy', in general, "as the ability to use computers at an adequate level for creation, communication and collaboration in a literate society" (p. 27). Computer Assisted Learning (CAL) provided another perspective which shows that the computer could teach students. From educational perspective, this definition changes to "the development of knowledge and skills for using general computer applications, language-specific software programs, and Internet tools confidently and competently" (Son, Robb & Charismiadji, 2011, p. 27).

II. Moving from Literacy to New Literacies

The changes mentioned in the Introduction section have resulted in a shift in the concept of literacy from "the ability to read and write in a predominantly printed context" (Goodfellow, 2011, p.131) to the new literacies. Literacy theorists have acknowledged the virtue of the digital sphere in constructing the contexts for literacy to be properly understood. As Warschauer (1999) highlights, "technological developments alone cannot account for changing conceptions of literacy. Rather, we must also take into account the broader social, economic, and political context" (p. 8). Different terms are coined for new literacies: '*multiliteracies*' (Gee, 1992; Luke, 1992; Kress, 1993), '*multimedia literacy*' (New London Group, 1996), '*technological literacies*' (Lankshear et al., 1997), '*silicon literacies*' (Synder, 1997), '*electronic literacy*' (Warschauer, 1999), '*technoliteracy*' (Erben, 1999), '*new literacy/literacies*' (Salaberry, 2000; Lankshear & Knobel, 2003), '*multiple literacies*' (Kellner, 2002), '*electracy*' (Ulmer, 2003), and '*Online literacy*' (Snyder & Beavis 2004).

Table 1.
Views of Literacy

Type	**Literature**
Computer literacy	Corbel, 1997
Cyberliteracy	Gurak, 2001
Digital literacy	European Commission, 2003
Electracy	Ulmer, 2003
Electronic literacies	Warschauer, 1999
eLiteracy	Martin, 2003
ICT literacy	Educational Testing Service, 2005
Media literacy	Kubey, 1997; Livingstone, 2003; Potter, 2004
Multiliteracies	Cope & Kalantzis, 2000; Unsworth, 2001
Multimedia literacy	New London Group, 1996
Multiple literacies	Kellner, 2002
New literacies	Lankshear & Knobel, 2003
Online literacy	Tuman, 1996
Silicon literacies	Synder, 2002
Technoliteracy	Lankshear & Synder, 2000; Luke, 1997
Visual literacy	Curtis, 2004; Moore & Dwyer, 1994

It is possible to define a range of distinct but interrelated literacies. 'Basic computer literacy', defined as "the learning of specific hardware and software applications" (US National Research Council, 1999, p. 9; Council of Australian University Librarians, 2001, p. 2), is a sine qua non for new literacies. Students, at least, should be able to work with their personal computers to effectively participate in our digital society. 'Cyberliteracy' refers to the ability to sort fact from fiction, to identify extremism from a debate, and to identify aspects such as gender bias, commercialism or imitation, together with other aspects of written language that may entail significant problems when communicating online (Gurak, 2001). "Digital literacy" is "the ability to use ICT and the Internet becomes (European Commission, 2003, p. 3). Moreover, Ulmer (2003) described *electracy* as "the kind of literacy or skill and facility necessary to exploit the full communicative potential of new electronic media such as multimedia, hypermedia, social software, and virtual worlds" (as cited in Konan, 2010, p. 2568). Warschauer used the term 'electronic literacies' in 1999 as the activities occur among language-learning students and computers. Electronic literacy is broader than information literacy and "it also encompasses how to read and write in a new medium" (Shetzer & Warschauer, 2000, p. 173). Martin (2003) coined the term 'eLiteracy' which means "the awarenesses, skills, understandings, and reflective-evaluative approaches that are necessary for an individual to operate comfortably in information-rich and ICT-supported environments" (p. 18). ETS (2007) defined 'ICT literacy' as "using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society" (Educational Testing System, 2007, p. 2). 'Media literacy' is the "ability to access, analyze, evaluate, and create messages in a variety of forms" (Aufderheide, 1993; Christ & Potter, 1998, Livingstone, 2004, p. 4). According to New London Group (1996), multimedia literacy is the ability to interpret and produce knowledge in multiple media and modes. Kellner (2002) used the term "multiple literacies" which "points to the many different kinds of literacies needed to access, interpret, criticize, and participate in the emergent new forms of culture and society" (p. 163). 'Online literacy' would refer to the "reading and writing one does at a computer" (Tuman, 1996, p. 27). The influence of hypertext and computer technologies on textual practices and understandings is called "silicon literacies" (Snyder 1997; 2002). 'Technoliteracy' "targets the integration of technology skills, computer-based cognitive tools and literacy practices to increase the learners thinking in the critical dimension. Design, then, becomes the shaping metaphor for both knowledge construction and the balanced integration of the four dimensions in that model" (Kimber, Pillay & Richards, 2007, p. 62).

It is obvious that there is significant overlap between the definitions of literacies mentioned above. Tyner (1998) identified the necessity to refer to multiliteracies in a plural form but prefers to recognize groups of associated literacies while maintaining "literacy" as an overall concept (pp. 63-68).

III. Computer/Electronic Literacy and Language Learning and Teaching

Digitization and globalization have reformed the field of language education and literacy. A demand for new literacy called "Computer literacy", "IT literacy" or "ICT literacy" has been aroused since the late 1960s. The significance of students and teachers' computer literacy has been quite widely discussed (e.g., Atkins & Vasu, 2000; Cunningham, 2000; Johnson, 2002; Lam, 2000; Oh & French, 2007; Park & Son, 2009; Shin & Son, 2007).

The merits of educational technology revise how language and literacy in the classroom are understood, taught, and tested. In second or foreign language teaching contexts, teachers have been averse to endorsing and applying these new dimensions of literacy. Valdés (2004) believed that second/foreign language teachers have the inclination to conceptualize language in their teaching as a single literacy rather than multiple literacies (p. 79). Adapting a new movement towards multimodal literacies in the second and foreign language classrooms is a difficult task (Tan & McWilliam, 2009; Valdés, 2004; Warschauer, 2008b). Even in well-equipped technological infrastructures, second/foreign language learning and teaching contexts have been shown to be undervaluing the merits of such technologies (Ware, 2008).

Reinking (1994) proposed four criteria for activities which aimed at developing electronic literacy in educational contexts:

"First, they should relate to conventional print-based literacy in meaningful ways… A second criterion is that activities designed to promote electronic literacy should involve authentic communication and meaningful tasks for students and teachers… Third, activities should engage students and teachers in higher levels of thinking about the nature of printed and electronic texts as well as about the topics of their reading and writing…. Fourth, activities should engage students and teachers in ways that allow them to develop functional strategies for reading and writing electronic texts". (Reinking, 1994)

Martin in 2003 mentioned three phases for computer literacy: a) The Mastery Phase (up to the mid-1980s): In this phase, the focus is on achieving specialist knowledge and competence to master computer, which includes computer basics like how the computer works and how to program it. b) The Application Phase (the mid-1980s to late-1990s): As the name suggests, the emphasis of this phase is on practical competence. One of the applications of computer in this phase is for educational purposes as an educational technology. c) The Reflective Phase (the late-1990s on): The focal point of the third phase is on more critical, evaluative, and reflective approaches to using IT. "ICT literacy [or computer literacy] is the interest, attitude and ability of individuals to appropriately use digital technology and communication tools to access, manage, integrate and evaluate information, construct new knowledge, and communicate with others in order to participate effectively in society" (Martin & Grudziecki, 2006, p. 251).

Along with developing in a digital world, the idea of what we mean by a 'computer literate' is unavoidably expanded (Reinking, 1994). In addition, one of the main issues in the area of language education is how to become computer literate to improve and develop language learning and teaching (e.g. Son, 2004).

Computer literacy is a necessity for students because it: (1) lays the foundations for developing a critical understanding of the Information Age; (2) helps students make effective use of digital technology, both in classroom and workplace settings, improving attitudes and reducing frustration; (3) shapes a proactive view with respect to the undeniable role of technology in our current society; (4) assists 'technophobic' to overcome fears of increasing computerization of all aspects of daily life; (5) develops solid skills among students, so that we can collectively pursue more creative uses of computers in the syllabus; (6) extends the personal enjoyment thanks to keeping in touch by regular email exchange, for instance; (7) provides 'realia' for all those terms related to hardware, software, the Internet, and in general the whole online culture (Corbel & Gruba, 2004, pp. 5-6).

Preparing students to well-function in the digitalized society is the major role of language education. In ESL/EFL classrooms, where English is the lingua franca, although some students already have computer or digital literacy in their own cultures and languages, they have the challenge of finding and responding to the massive amount of English language data available on the Internet. Warschauer and Healey (1998) specified two indispensable domains for language teachers: (1) Finding, evaluating, and critically interpreting net-based information, and (2) Effective online writing. For the former domain, they suggested teachers to "go beyond how to decode texts, or understand them, and pay increasing attention to how to explore and interpret the vast range of online texts" (p. 65). Moreover, for the latter one, they recommended second language teachers "to teach students effective online writing skills [which] include both the genres of electronic communication as well as the relationship of texts to other media" (Warschauer & Healey, p. 65).

To blend technology successfully into the language classrooms, teachers required to construct their "working knowledge and skills in online environments" (Rilling, Dahlman, Dodson, Boyles & Pazvant, 2005, as quoted in Son, Robb & Charismiadji, 2011, p. 27) and have technical ability to apply several computer applications for educational targets (Cunningham, 2000). Hence, in CALL, the augmentation of language teachers' computer literacy is one of the most significant facets to consider (Hong, 2010), acknowledging the request for technology-proficient language teachers (Hubbard, 2008). Computer literate teachers and students will receive greater professions than those who lack this literacy.

There are some notes on the significance of electronic literacy for language learners. Hall (2001) mentioned that "How well we prepare learners of additional languages to meet the social, political, and economic challenges of the next

several decades will depend in part on our success in integrating technology into the foreign language curriculum" (p. 60). By this statement, we should not interpret it as integration any technological tools or devices, but he meant those technologies which would be suitable for language learning and teaching. Also, this author stated that "all domains and modes of communication are likely to involve not only conventional written and oral modalities but, given the influence of technology in our lives today, electronic ones as well" (Hall, 1999, p. 38).

As Kern & Warschauer (2000) remind us, computers like any other educational tools in the classroom for language teaching and learning do not in and of itself bring about enhancement in learning. However, teachers and learners should know how to use it in order to improve their language teaching and learning (p. 2).

In order to apply computer-assisted language learning (CALL) in language learning and teaching environments, language teachers and learners are needed to construct their knowledge and skills for implementing computers and enhance their competency in doing several kinds of CALL activities (Son, Robb & Charismiadji, 2011). Son, Robb and Charismiadji's (2011) study was to study the current level of computer literacy of 73 Indonesian in-service teachers of English as a foreign language (EFL) and explore all those factors that may affect their use of computers in face-to-face lessons. A questionnaire was applied in order to collect data. The instrument composed of items regarding participants' background, use of computer applications, computer-related questions, computer knowledge test, and factors affecting the use of computers. Although data analysis showed that most teachers felt that their level of computer literacy, Internet literacy, and typing skills were adequate or higher, there were also great individual differences in the level of computer literacy. Son, Robb & Charismiadji (2011) concluded that "these differences bring about a need for a different approach to teacher training for a different background group of teachers, which allows teachers to improve their personal level of computer literacy and competency and gain online experience contextually relevant to their teaching situations" (p. 34).

In order to specify the levels of teachers' computer literacy, Konan (2010) conducted a study on 506 teachers in Turkey. The gather data via researcher-made questionnaire were analyzed using t-test and one-way analysis of variance. The results showed a significant difference between the levels computer literacy in terms of their gender, experience, and education level. The overall computer literacy of teachers was medium. Moreover, male, novice, highly educated, and subject teachers were more literate, in terms of computer, than female, experienced, low educated, and class teachers. Konan (2010) suggested teachers increase their computer literacy by achieving some international licenses like European Computer Driving License (ECDL).

Warshcauer (2008) conducted a 2-year multi-site case study in order to investigate literacy practices in 10 schools in California and Maine, the US, with one-to-one computing programs based on a sociocultural framework of literacy (Gee, 1996). Data collection included observation (650 hours), interviews (with 61 teachers, 32 school staff members, 67 students, and 31 parents), surveys (from 35 teachers and 877 students), and document reviews (teaching materials, student assignments, and student test scores). Collected data were analyzed through standard qualitative methods. The findings of the study were categorized in three main domains: reading, writing, and ICT literacy. For the purpose of this text, we have considered only ICT literacy. The findings revealed that, the ongoing access to new technology in one-to-one programs permitted both teachers and students to go beyond focusing on the mechanical aspects of ICT literacy like how to copy and paste information. In addition, regular access to the Internet allowed more exhaustive skills and competencies (Warschauer, Knobel, & Stone, 2004) such as a) more "just-in-time" learning, b) more individualized learning, c) greater ease in conducting research, and d) more empirical investigation (Warschauer, 2008b, p. 61).

IV. Conclusion

Globalization and the increasing range of ICT for communication led to the digital turn or "social turn" (Gee, 2000, p.180). Nowadays the meaning of literacy expanded from an ability to read and write to a broader definition which includes an ability to read and write both printed and electronic texts. In the 21st century, students need to promote their skills based on the time needs. The computer is an integral part of our daily lives; editing texts and photos, shopping, traveling, studying, etc. The computer technology becomes widely available and rapidly advanced. By this rapid progress, new literacies such as "computer literacy" and "electronic literacy" are brought up. Language teachers and students must develop their skills, prepare themselves for the future, and update themselves constantly. To be a competent individual in this information-based world, students and teachers should be aware of ways to access to information and actively making use of it. These qualities are achievable if they get familiar with new technologies and be a computer literate.

Students should learn how to assess their educational technologies from different point of views or subject positions (Selber, 2004). They should develop their multiple literacies in which how to use a technology by functional literacy, questioning technology by critical literacy, and finally producing or influencing technology by rhetorical literacy. These types of literacies are complimentary to each other, and all of them are necessary for language learners and teachers. "A considered focus on computer literacy in the classroom provides both teachers and students with a skill set to make better use of both CALL and productivity applications" (Corbel & Gruba, 2004, p. 7).

The Internet and all other computer-related texts suggest to educators, scholars, and students, a new adoption to new literacy which integrated into the educational context. Although printed materials are still the dominant media, the student should adapt themselves to new media; and therefore learn its literacy.

Authors' Note:
This paper is extracted from the first author's PhD dissertation at the University of Córdoba, Córdoba, Spain.

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4. Study 3: Developing and validating a questionnaire to measure CALL literacy

DEVELOPING AND VALIDATING A QUESTIONNAIRE TO MEASURE CALL LITERACY

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Abstract

This paper focuses on aspects of methodology within a study of Computer-Assisted Language Learning (CALL). In particular, it presents the development and validation of a Computer-Assisted Language Learning (CALL) literacy questionnaire in a cross-cultural study which aimed to explore the relationship between CALL literacy and the attitudes of Spanish and Iranian English language students and teachers towards CALL. To this end, we will briefly explain the methods and procedures followed in the study. At the time of writing, the study is ongoing and so the paper is solely intended as a preliminary account of methodology; it does not seek to present or discuss the study's overall findings.

Key words: Questionnaire; Delphi Survey Technique; Validation; Development; CALL Literacy.

Resumen

Este capítulo analiza el desarrollo y la validación de un cuestionario relacionado con el Aprendizaje de Lenguas Asistido por Ordenador (cuyas siglas en inglés, CALL, corresponden a *Computer-Assisted Language Learning*). El objetivo de este estudio trans-cultural es medir la relación entre el conocimiento y las actitudes hacia CALL de estudiantes españoles e iraníes de inglés como segunda lengua. Para llevar a cabo nuestro objetivo, explicaremos brevemente los métodos y el procedimiento seguido en este estudio.

Palabras clave: cuestionario; técnica Delphi; validación; desarrollo; conocimiento de CALL.

1. Introduction

Dealing with technology has become one of the critical aspects of our daily lives. This integration of technology into our lives has extended to our professional careers as well. Today, it is important for teachers and students to be aware of how to integrate technology in their teaching and learning behaviour. Chapelle (2008) believed that today teachers who fail to integrate technology in language teaching are likely to be considered as being behind the times. Computer-Assisted Language Learning (CALL), as the name suggests, is the use of computers in the service of language teaching and learning. Levy (1997) defined CALL as "the search for and study of applications of the computer in language teaching and learning" (Levy, 1997, p. 1). Although the name includes "computer", the term CALL embraces "any applications of Information and Communication Technologies (ICT) to teaching and learning foreign languages" (Tafazoli, Gómez Parra & Huertas Abril, 2018, p. 38). There is a considerable amount of research that seeks to appraise CALL and its programs from a variety of aspects. The literature shows that most of the research studies on CALL concentrate on the applied tools and devices, learning tasks, and learners who are the end users of CALL (Chapelle, 2003). However, only two paper presentations (Tafazoli, 2014; Tafazoli & Gómez Parra, 2017), and one workshop (Tafazoli, 2018) has dealt with the critical concept of CALL literacy. Moreover, none of the previous research focuses on the relationship between CALL literacy and the attitudes of language teachers and learners. CALL literacy is "the ability to use technology at an adequate level for teaching or learning a language" (Tafazoli, 2014, 2018).

The ultimate goal of CALL is not to decorate and furnish classrooms with different technology-based tools provided by educational administrators, but to provide an appropriate setting which facilitates language learning (Tafazoli et al., 2018), and to empower teachers' and students' literacy. The more CALL-literate students and teachers become, the more appropriate applications they will have with which to use CALL. Moreover, from the attitude perspective, the more positive attitudes students have towards e-learning and computer-based learning, the more behavioural intention they will have to use it (Liaw, 2002).

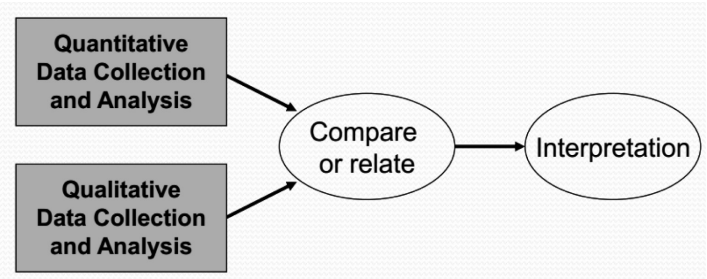
2. Research design

This cross-cultural study applied a mixed-methods research design. The mixed-methods research design is a procedure for collecting, analyzing and mixing both quantitative and qualitative research and methods in a single study to understand a research problem. The researchers decided to use a mixed-method design because both quantitative and qualitative data, together, provide a better understanding of the research. The design was planned at the start of the research process. The most well-known approach to mixing methods is the convergent design, in which two

different methods are used to obtain triangulated results about a single topic. The convergent design is used "when the researcher collects and analyzes both qualitative and quantitative data during the same phase of the research process and then merges the two sets of results into an overall interpretation" (Creswell & Plano Clark, 2011, p. 77).

Different names are proposed for this type of design, including simultaneous triangulation (Morse, 1991), parallel study (Tashakkori & Teddlie, 1998), convergence model (Creswell, 1994), and concurrent triangulation (Creswell, Plano Clark, Gutmann & Hanson, 2003). In the convergent design both types of data are collected during the same phase of the research simultaneously. Moreover, it is possible to collect and analyze each type of data separately and independently.

Fig. 1. Prototypical version of the convergent parallel design (Creswell & Plano Clark, 2011, p. 69)



3. Participants

3.1. *Teachers*

The following data and tables are based on the latest collected data from the participants at the time of writing this chapter. As an ongoing project, the data will be changed over time, based on more participation. Overall, Table 1 outlines that 49.04 % of the language teachers in the sample were Spanish, and 50.96% were Iranian. Hence, there were only 6 more Iranian in the sample than the Spanish teachers.

Table 1
Distribution of Spanish and Iranian Teachers in the Sample

	Frequency	Percent	Valid Percent	Cumulative Percent
Spanish	154	49.04	49.04	49.04
Iranian	160	50.96	50.96	100.0
Total	314	100.0	100.0	

As it is depicted in Table 2, female was the dominant gender in both Spanish and Iranian teachers sample (64.02 %). Only 35.98% of the teachers of the sample were male.

Table 2
Distribution of Different Genders in the Teachers Sample

Nationality	Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Spanish	Male	44	14.01	14.01	14.01
	Female	110	35.04	35.04	49.05
Iranian	Male	69	21.97	21.97	71.02
	Female	91	28.98	28.98	100.0
	Total	314	100.0	100.0	

As far as the participants' age was concerned, as depicted in Table 3, the largest category of Spanish (105 teachers) fell within the age 36 and above. The second and third largest groups were the category of 30 to 35 years old; and 36 and above are the largest categories in Iranian teachers. The smallest group in both Spanish and Iranian teachers in the sample ranged between 18 and 23, comprising only 2.5% of the sample.

Table 3
Distribution of Age in the Teachers Sample

Nationality	Age	Frequency	Percent	Valid Percent	Cumulative Percent
Spanish	18-23	0	0	0	0
	24-29	15	5	5	5
	30-35	34	10.8	10.8	15.8
	36 & above	105	33.4	33.4	49.2
Iranian	18-23	8	2.5	2.5	51.7
	24-29	29	9.2	9.2	60.9
	30-35	61	19.4	19.4	80.3
	36 & above	62	19.7	19.7	100
	Total	314	100	100	

It could be observed in Table 4 that teachers with BA, MA and PhD degree in both nationalities had an almost equal proportion in the sample – 6.3% and 7.3%; 26.4% and 28.9%; and 14.6% and 14% respectively.

Table 4
Distribution of Academic Degree in the Teachers Sample

Nationality	Degree	Frequency	Percent	Valid Percent	Cumulative Percent
Spanish	BA	19	6.3	6.3	6.3
	MA	83	26.4	26.4	32.7
	PhD	46	14.6	14.6	47.3
	Other	6	1.9	1.9	49.2
Iranian	BA	23	7.3	7.3	56.5
	MA	91	28.9	28.9	85.4
	PhD	44	14.0	14.0	99.4
	Other	2	0.6	0.6	100
	Total	314	100	100	

Table 5 shows that the majority of the teachers (60.4%) in the sample are experienced ones with 10 years and more experience in language teaching. However, only 8.9% of the teachers have less than 3 years of experience in language teaching.

Table 5
Distribution of Language Teaching Experience in the Sample

Nationality	Experience	Frequency	Percent	Valid Percent	Cumulative Percent
Spanish	Never	0	0	0	0
	1-3 years	7	2.2	2.2	2.2
	4-6 years	16	5.1	5.1	7.3
	7-9 years	25	8.0	8.0	15.3
	10 years and more	106	33.7	33.7	49
Iranian	Never	0	0	0	49
	1-3 years	21	6.7	6.7	55.7
	4-6 years	29	9.3	9.3	65
	7-9 years	26	8.3	8.3	73.3
	10 years and more	84	26.7	26.7	100
	Total	314	100	100	

3.2. *Students*

Table 6 outlines that 72.3% of the language students in the sample were Iranian, and only 27.7% were Spanish. This shows a great difference between the number of participants from these two different contexts. Hence, there were 74 more Iranian in the sample than the Spanish students.

Table 6 Distribution of Spanish and Iranian Students in the Sample

	Frequency	Percent	Valid Percent	Cumulative Percent
Spanish	46	27.7	27.7	27.7
Iranian	120	72.3	72.3	100.0
Total	166	100.0	100.0	

To find the gender differences among students, Table 7 clearly shows that female was the dominant gender (79.2%) in both Spanish and Iranian students sample. Only 20.8% of the students were male.

Table 7 Distribution of Different Genders in the Students Sample

Nationality	Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Spanish	Male	13	7.8	7.8	7.8
	Female	33	19.9	19.9	27.7
Iranian	Male	22	13.0	13.0	40.7
	Female	98	59.3	59.3	100
	Total	166	100.0	100.0	

As depicted in Table 8, the largest category of participants (34.93% of the students) fell within the age range of 18 and 23. The second and third largest groups were the category of 24 to 29 years old (25.92%) and that of 30 to 35 (21.69%), respectively. The smallest group in the sample were in age 36 and above, comprising only 17.46% of the sample.

Table 8
Distribution of Age in the Teachers Sample

Nationality	Age	Frequency	Percent	Valid Percent	Cumulative Percen
Spanish	18-23	16	9.63	9.63	9.63
	24-29	11	6.62	6.62	16.25
	30-35	7	4.21	4.21	20.46
	36 and above	12	7.22	7.22	27.68
Iranian	18-23	42	25.3	25.3	52.98
	24-29	32	19.3	19.3	72.28
	30-35	29	17.48	17.48	89.76
	36 and above	17	10.24	10.24	100
Total		166	100	100	

The majority of the students were BA and MA with 40.36% and 39.76% respectively. It is quite interesting to see that 19 participants were PhD students.

Table 9
Distribution of Academic Degree in the Students Sample

Nationality	Degree	Frequency	Percent	Valid Percent	Cumulative Percent
Spanish	BA	20	12.04	12.04	12.04
	MA	17	10.24	10.24	22.28
	PhD	6	3.62	3.62	25.9
	Other	3	1.8	1.8	27.7
Iranian	BA	47	28.32	28.32	56.02
	MA	49	29.52	29.52	85.54
	PhD	13	7.83	7.83	93.37
	Other	11	6.63	6.63	100
Total		166	100	100	

As you can find in the Table 10, more than half of the Spanish and Iranian students (56.8%) have 10 years and more experience in language learning. However, only 7.21% of the participants have less than 3 years of experience in language learning.

Table 10
Distribution of Language Learning Experience in the Sample

Nationality	Experience	Frequency	Percent	Valid Percent	Cumulative Percent
Spanish	Never	2	1.2	1.2	1.2
	1-3 years	2	1.2	1.2	2.4
	4-6 years	3	1.8	1.8	4.2
	7-9 years	5	3.01	3.01	7.21
	10 years and more	34	20.5	20.5	27.71
Iranian	Never	0	0	0	27.71
	1-3 years	8	4.81	4.81	32.52
	4-6 years	22	13.26	13.26	45.78
	7-9 years	29	17.47	17.47	63.25
	10 years and more	61	36.75	36.75	100
	Total	166	100	100	

4. Instrument validation: Delphi methodology

To meet the end of the study, the researchers posed the following research questions:

RQ1. Are there any differences between Iranian and Spanish English language students and teachers' CALL literacy?
RQ2. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL?
RQ3. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL based on gender?
RQ4. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL based on education level?
RQ5. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL based on age?
RQ6. Is there any relationship between Iranian and Spanish English language students and teachers' CALL literacy and attitudes towards CALL?

In order to make an effective decision where there is insufficient information on the issue of CALL literacy, the researchers decided to apply the Delphi methodology, which was originally developed for technological forecasting. The initial questionnaire for this research was designed and submitted to twenty experts in the field. Due to the multidisciplinary nature of CALL, the researchers decided to arrange the panel of experts based on their expertise. Therefore, the panel consisted of twenty PhDs from different fields of Applied Linguistics, Computer Sciences, English Language Teaching, and Computer-Assisted Language Learning, from different parts of the world such as Iran, Spain, the USA and the UK, among others.

The data collection and analysis phase of the Delphi was guided by three issues: the discovery of opinions; the process of determining the most important issues; and managing opinions (Hasson, Keeney & McKenna, 2000). First, the researchers tried to discover the opinions to reach consensus on the content of the questionnaire. After gathering experts' opinions, data were analysed through a content analysis technique. At the end of three rounds, the researchers agreed on two parallel questionnaires.

5. Development of the instruments

After reaching consensus on the content of the questionnaires to collect data from both teachers and students, two parallel online four-section questionnaires were employed. The survey in the form of a questionnaire is one of the most usual methods of data collection on attitudes and opinions in a large-scale research (Mackey & Gass, 2005). Researchers use questionnaires to collect data from language learners and teachers to know about their beliefs, motivations and/or reactions about their language instructions, settings, activities, etc. Phellas, Bloch & Seale (2011) mentioned some advantages of web-based (online) surveys:

> (1) Web page surveys are extremely fast. (2) No cost is involved once the set-up has been completed. (3) You can show pictures, video and play sound. (4) Web page questionnaires can be set with skip instructions. (5) Web page questionnaires can use colours, fonts and other formatting options not possible in most email surveys. (6) A significant number of people will give more honest answers to questions. (7) People give longer answers to open-ended questions. (8) Survey answers can be combined with pre-existing information you have about individuals taking a survey. (Phellas, Bloch & Seale, 2011, p. 190)

The online questionnaire provides automatic data coding, data input, data editing and data assessment. The website which hosts the platform for these online questionnaires is https://docs.google.com, and the participants had access to the questionnaires via the provided online links. The online questionnaires comprised 29 main closed- and open-item questions. In a closed-item question, all the possible answers are determined by the researcher, but answers to open-item questions are varied (Dörnyei, 2003).

In the quantitative phase of the study, the first section of the questionnaire intends to gather data about participants' demographic information and professional experiences. The second section aims to investigate CALL literacy of the students and teachers through 5 main items. The third section is focused on participating teachers and students' attitude towards CALL; this section comprised of twenty-nine 5-point Likert-scale items from strongly disagree (1) to strongly agree (5). The final part of the questionnaire in the last section (the qualitative phase) consists of ten open-ended questions on students and teachers' experience in using English language software or any other related experiences with CALL. After the questionnaire had been administered to the members of the sample,

the items were scored by the researchers, and the quantitative data were imported to Statistical Packages for Social Sciences (SPSS) Software (version 19.0 for Windows), so that the statistics were calculated. In order to analyze the collected qualitative data, a SWOT analysis was conducted manually. Statistical analysis included content analysis of qualitative data to classify data and align them into the SWOT analysis matrix.

Table 11
Distribution of Questions on the Questionnaires

Sections	**Section I**	**Section II**	**Section III**	**Section IV**
Question Type	Background information	CALL literacy	Attitudes towards CALL	Open-ended items
Total	13	56	29	10

Source: Own elaboration

6. The psychometrics of the instruments

In order to confirm that the questionnaires applied in this study were well-functioning, the researchers checked their psychometric aspects as the first step. It should be pointed out that checking the psychometrics of the questionnaires was carried out according to the real scores that were obtained from the whole sample. This way, the researcher would have made sure that the differences between the pilot and the main sample did not tamper with the naturalness of the measurements. The most significant facets of psychometrics checked in this study were reliability and validity. Reliability in research instrument deals with its consistency, however, validity refers to the accuracy of the instrument. It should, however, not be left unmentioned that the researchers took all the scores to the power of two for psychometrics analysis in the pursuit of obtaining more naturalistic and authentic results.

6.1. *Checking the Reliability of the Questionnaires*

The questionnaires contained 108 items, which measured two different constructs in two categories. After administering this questionnaire to the sample, the researchers first checked the validity of the case processing. All the cases of the sample were valid, and SPSS did not exclude the scores of any of the participants from the processing. Then, the researchers calculated the Cronbach's Alpha Coefficient, ranges in value from 0 to 1, for each construct to see if each construct enjoys an acceptable level of reliability. Finally, the researchers calculated the internal consistency of the whole questionnaire.

6.2. *Checking the Validity of the Questionnaires*

In order to reaffirm of the validity of the questionnaires, the researchers decided to apply the Factor Analysis Method. Field (2005) proposed that, in general, over 300 cases

for sampling analysis is probably adequate for the successful administration of factor analysis; hence, this study, with more than 300 cases in the sample, met this standard for the administration of factor analysis. The correlation matrix in the factor analysis and the Kaiser-Meyer-Olkin Measure (Kaiser, 1970), which measures the strength of the relationship among variables were acceptable values. Moreover, Bartlett's test of Sphericity, which is another indication of the strength of the relationship among variables, shows that that the correlation matrix was not an identity matrix. Hence, the administration of factor analysis was possible and proper.

7. Summary

This paper focused on key methodological aspects of Computer-Assisted Language Learning (CALL). In particular, we have presented the development and validation of a Computer-Assisted Language Learning (CALL) literacy questionnaire in a cross-cultural study, which aimed to explore the relationship between CALL literacy and the attitudes of Spanish and Iranian English language students, and teachers towards CALL. To this end, we have briefly explained the methods and procedures followed in the study. To find the answers for the questions of the study, the convergent parallel mixed methods were applied. The research design, questions, instrument, procedure and data analysis of the study were explained in this chapter.

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Richard Johnstone

NUEVAS PERSPECTIVAS EN EDUCACIÓN BILINGÜE: INVESTIGACIÓN E INNOVACIÓN

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La nomenclatura de las editoriales puede haber cambiado como fruto de las modificaciones en la estructura de los grupos editoriales.

"Ningún mapa sustituye a la región cartografiada, pero al mismo tiempo (…) una carta bien trazada simplifica el recorrido"

Tomás Granados Salinas.Director de la colección Libros sobre libros del Fondo de Cultura Económica, en la nota de Manual de edición literaria y no literarial

Prestigio de las editoriales según expertos españoles. Editoriales mejor valoradas por sectores (2018)

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2	Gredos (Grupo RBA)	308
3	Iberoamericana / Vervuert	236
4	Arco Libros - La Muralla	235
5	Consejo Superior de Investigaciones Científicas (CSIC)	216
6	Alianza (Grupo Anaya, Hachette Livre)	204
7	Ariel (Grupo Planeta)	203
8	Editorial Síntesis	176
9	Universitat de València	114
10	Akal(Akal)	112
11	Universidad de Salamanca	111
12	Ediciones Clásicas	90
13	Editorial Crítica (Grupo Planeta)	81
14	Comares	73
15	Castalia	57
16	Publicacions de l'Abadia de Montserrat	55
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18	Tirant Lo Blanch	51
19	Real Academia Española	43
19	Visor Libros	43
20	Universidade de Santiago de Compostela (USC)	40
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21	Editorial Renacimiento	39
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7	Brill	249
8	Rodopi	101
9	Brepols Publishers	92
10	Reichenberger	76
11	Palgrave Macmillan	73
12	Harvard University press	68
13	Iberoamericana / Vervuert	59
14	Fondo de Cultura Económica (México)	58
15	Blackwell Publishing	53
16	Les Belles Lettres	49
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28	Frank & Timme	22
29	Georg Olms Verlag	21
30	Ashgate Publishing (Ashgate Publishing Group)	20
31	Editions Meridiennes, Universite Toulouse Le Mirail	18

33	Universidad de Sevilla	25
33	Universidad de Murcia	25
34	Dykinson S.L.	24
34	Galaxia Gutemberg	24
35	Editorial Afers	22
35	Fondo de Cultura Económica	22
36	Editorial Fundamentos	21
36	Universidad Autónoma de Madrid	21
37	McGraw-Hill Interamericana de España S.L.	20
37	Pre-Textos	20
37	Universitat Jaume I	20
38	Universidad del País Vasco	19
38	Universidad Nacional de Educación a Distancia (UNED)	19
38	Institut Interuniversitari De Filologia Valenciana	19
39	Ediciones Paidós	18
39	Abada Editores	18
39	Arcibel	18
40	Biblioteca Nueva	17
41	Instituto de Estudios Humanísticos	16
41	Milenio Publicaciones, S.L.	16
42	Icaria Editorial	15
42	Equinox	15
42	Eumo editorial	15
43	Anagrama	14
43	Calambur	14
43	Escolar y Mayo	14
44	Institut d'Estudis Catalans	13
44	Universidad de Alcalá de Henares	13
45	Enciclopèdia Catalana (Grup Enciclopedia Catalana)	12
45	Universidade da Coruña	12
46	Acantilado	10
46	Edicións Xerais de Galicia	10
46	Elsevier España, S.L.U	10
46	Emerita	10
46	Península	10
46	Universidad de Castilla-La Mancha	10
46	Casa de Velázquez	10
47	Anaya (Grupo Anaya, Hachette Livre)	9
47	Aranzadi (Thomson Reuters)	9
47	Editorial Planeta	9
47	Universidad de Navarra (EUNSA)	9
47	Centro De Estudios Andaluces	9
47	Editorial Galaxia	9
47	Fundació Bernat Metge	9
47	Grupo Editorial SIAL Pigmalión, S.L.	9
47	Ollero y Ramos	9
47	Sgel	9
48	Gedisa	8
48	Universitat Politècnica de València (UPV)	8
48	Pasado & Presente	8
48	Real Academia De La Historia	8
48	Adesiara	8
48	Alma Mater	8
48	Ediciones Idea	8
48	Guillermo Escolar Editor	8
48	KRK Ediciones	8
48	Lynx Ediciones	8
48	Myrtia	8
48	Seminario de Estudios Medievales y Renacentistas (SEMYR)	8
31	Gallimard	18
32	Peeters (Leuven)	17
32	Sismel. Edizioni Del Galluzzo	17
33	Erich Schmidt Verlag	16
33	Universidad Nacional Autónoma de México (UNAM)	16
34	Ann Arbor	15
34	Bulzoni Editore	15
34	Continuum	15
34	Giulio Einaudi Editore	15
34	Levante Editori (Bari - Italia)	15
34	Liverpool University Press	15
34	Presses de l'université Paris-Sorbonne	15
35	Classica Digitalia	14
35	Johns Hopkins University	14
35	Le Seuil	14
35	Mondadori (Penguin Random House)	14
36	Il Mulino	13
36	Macmillan	13
36	Sage Publications	13
37	Wiley Blackwell	12
37	Winter	12
38	Chicago University Press	11
39	Aisthesis	10
39	Barkhuis	10
39	Center for Basque Studies. University of Nevada, Reno	10
39	Clarendon Press (Oxford University Press)	10
39	Duke University Press	10
39	Franco Cesati Editore	10
39	Humanistica Lovaniensia	10
39	Karthala	10
39	Modern Language Association of America (MLA)	10
39	Penguin Books	10
39	Pittsburg University Press	10
39	Toronto University Press	10
40	Anna Blume Editora	9
40	Delaware University Press (Newark)	9
40	Editorial Médica Panamericana	9
40	Feltrinelli	9
40	IGI Global	9
40	Königshausen Neumann	9
40	Laterza	9
40	L'Erma Di Bretschneider	9
40	Leuven University Press	9
40	Literatura Novohispana (Colegio de México)	9
40	Metzler	9
40	MIT press	9
40	Orbis Tertius	9
40	Pickering & Chatto	9
40	Porto editora	9
40	Présence africaine	9
40	Siglo XXI (Argentina)	9
41	Belles Lettres	8
41	Buske	8
41	Cornell University press	8
41	Corregidor	8
41	De Boeck	8
41	Imprensa Nacional-Casa da Moeda	8
41	Iudicium	8
41	Longman	8
41	Medieval & Renaissance Text & Studies	8

48	Septem Ediciones	8
48	Siruela	8
49	Alfaguara	7
49	Ediciones Paraninfo, S.A.	7
49	Los Libros de la Catarata	7
49	Pearson Educación, S.A.	7
49	Universidad de Cádiz	7
49	Alfar	7
49	Consello Da Cultura Galega	7
49	Ediciones del Orto	7
49	Empuries	7
49	Onada Edicions	7
49	Promociones Y Publicaciones Universitarias	7
49	Reichenberger	7
49	Universidad Valladolid	7
49	Institució Alfons El Magnànim	7
49	Lleonard Muntaner Editors S.L.	7
49	Institut Universitari De Lingüística Aplicada (Universitat Pompeu Fabra)	7
50	Centro Virtual Cervantes	6
50	Marcial Pons	6
50	Plaza y Valdés	6
50	Universitat Autònoma de Barcelona	6
51	Narcea	5
51	Pirámide (Grupo Anaya, Hachette Livre)	5
51	Siglo XXI de España Editores, S.A.	5
51	Universidad de Málaga	5
51	Universitat Rovira i Virgili	5
51	Almuzara	5
51	Círculo de Lectores	5
51	Hiperión	5
51	Instituto De Estudios Canarios	5
51	Rhemata	5
51	Axac	5
52	Ediciones Bellaterra	4
52	Universidad de Deusto	4
52	Universidad de Oviedo	4
52	Universitat des Illes Balears	4
52	Institución Fernando el Católico	4
52	Editorial Áurea	4
52	Quaderns Crema	4
52	Universidad de La Laguna	4
53	Octaedro	3
53	Crema	3
53	Cálamo	3
53	Aula Màrius Torres	3
53	B (Ediciones B)	3
53	Devenir	3
53	Institut Alacanti De Cultura Juan Gil Albert	3
53	Liceus	3
53	Toxosoutos	3
54	Editorial Taurus	2
54	Santillana (Grupo Santillana)	2
54	Universidad de Valladolid	2
54	Biblioteca Castro	2
54	Sociedad De Estudios Latinos	2
54	Tres i Quatre	2
54	universidad de Huelva	2
55	Sílex Ediciones	1
55	Cossetània Edicions	1
55	Universitat de Lleida	1
41	Quasar Publishing	8
41	Suhrkamp Verlag	8
41	Università di Trento	8
41	Wilfrid Laurier University Press	8
41	Wilhelm Fink Verlag	8
42	Armand Colin (Hachette Livre)	7
42	Bucknell University Press	7
42	Colibrí	7
42	Éditions Bordas	7
42	Hachette (Hachette Livre)	7
42	Larousse	7
42	Manchester University Press	7
42	Monduzzi Editore	7
42	Pontificia Universidad Católica del Perú	7
42	Princeton University Press	7
42	Universidad Autonoma Del Estado De México	7
42	University College London Press (UCL Press)	7
42	Wales University press	7
42	Yale University Press	7
43	Alberta University Press	6
43	Edinburgh University Press	6
43	Encrage	6
43	Fabrizio Serra Editore	6
43	Franz Steiner Verlag	6
43	Garzanti	6
43	Georgetown University Press	6
43	Groos	6
43	Leiden University Press	6
43	McGill-Queen's University Press	6
43	McGraw Hill	6
43	Scottish Literature International	6
43	Steidl	6
43	Universidad De Coimbra	6
44	Antilia	5
44	Edizioni del'Orso	5
44	EPURE Presses Universitaires de Reims	5
44	Escolar Y Mayo	5
44	Gylphi	5
44	Klincksieck	5
44	New York University Press	5
44	Peniope	5
44	Pressees Universitaires Limoges (PULIM)	5
44	Taylor & Francis Group	5
44	Virginia University Pres	5
45	Flammarion	4
45	Heinemann	4
45	Leo S. Olschki Editore	4
45	Universitatis Bohemia Meridionalis	4
45	Université de Genève	4
46	Dr. Kova?	3
46	Martin Meidenbauer	3
46	Minnesota University Press	3
46	Pensa Multimedia	3
46	Presses Universitaires De Lyon	3
46	Wallstein	3
47	Edwin Mellen	2
47	Grasset	2
47	Gref	2
47	Pearson Publishing	2
47	Presses Universitaires Blaise Pascal	2
47	Taschen	2
48	Columbia University Press	1

48	Harvester Wheatsheaf	1
48	Rowman & Littlefield (Rowman & Littlefield Publishing Group)	1
48	Teneo Press	1
48	Vanderbilt University Press	1
48	Viella	1

* Entre las editoriales españolas constan algunas internacionales (con sede en España) que también aparecen entre las extranjeras. Los investigadores han querido señalar en estos casos la actividad editorial en España de determinada editorial internacional.

Aunque el objeto de estudio de la encuesta en la que se basan estos resultados han sido las editoriales que publican libros científicos, los rankings pueden incluir editoriales de otra naturaleza pues reflejan fielmente las respuestas de los investigadores.
La nomenclatura de las editoriales puede haber cambiado como fruto de las modificaciones en la estructura de los grupos editoriales.

"Ningún mapa sustituye a la región cartografiada, pero al mismo tiempo (…) una carta bien trazada simplifica el recorrido"
Tomás Granados Salinas.Director de la colección Libros sobre libros del Fondo de Cultura Económica, en la nota de Manual de edición literaria y no literarial

5. Study 4: Análisis DAFO de las actitudes y percepciones de profesorado y alumnado de inglés como lengua extranjera hacia el aprendizaje de idiomas asistido por ordenador: estudio intercultural en Irán y España

ANÁLISIS DAFO DE LAS ACTITUDES Y PERCEPCIONES DE PROFESORADO Y ALUMNADO DE INGLÉS COMO LENGUA EXTRANJERA HACIA EL APRENDIZAJE DE IDIOMAS ASISTIDO POR ORDENADOR: ESTUDIO INTERCULTURAL EN IRÁN Y ESPAÑA

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Resumen

Este estudio aborda el diseño de una matriz DAFO basada en las actitudes y percepciones de profesorado y alumnado de idiomas en Irán y España para explorar las fortalezas, oportunidades, debilidades y amenazas del Aprendizaje de Lenguas Asistido por Ordenador (conocido como CALL, acrónimo de *Computer-Assisted Language Learning*), así como las diferencias existentes entre estos dos contextos. Los datos recopilados se analizaron mediante análisis estadístico (que incluyó el análisis del contenido de los datos cualitativos) para clasificar los datos y alinearlos en la matriz DAFO. Las conclusiones de este trabajo apuntan a las implicaciones pedagógicas, así como a una serie de recomendaciones para seguir investigando en este campo.

Palabras clave: Aprendizaje de Lenguas Asistido por Ordenador, CALL, estudio intercultural, análisis DAFO

Abstract

This study addresses the design of a SWOT matrix based on language teachers' and students' attitudes and perceptions in Iran and Spain to explore the strengths, opportunities, weaknesses, and threats of Computer-Assisted Language Learning (CALL), as well as the existent differences between these two contexts. Collected data were scrutinized through statistical analysis (which included content analysis of qualitative data) to classify data and align them into the SWOT matrix. Our conclusion points to pedagogical implications as well as recommendations for further research.

Keywords: Computer-Assisted Language Learning, CALL, Cross-cultural study, SWOT analysis.

1 INTRODUCCIÓN

Son numerosos los autores que indican que se deben combinar diversos elementos para un uso exitoso de la tecnología en el proceso de enseñanza-aprendizaje de lenguas extranjeras (Hubbard y Levy, 2006; Kassen, Lavine, Murphy-Judy, y Peters, 2007; Kessler, 2010; Son, Robb, & Charismiadji, 2011). En este contexto, destacan las investigaciones sobre las ventajas y desventajas del aprendizaje de lenguas asistido por ordenador (más conocido por sus siglas en inglés, CALL, que

corresponden a *Computer-Assisted Language Learning*). No cabe duda de que en la actualidad el *software*, las herramientas y los programas de CALL están ampliamente disponibles para el profesorado y alumnado de lenguas a nivel mundial (aunque esta accesibilidad puede variar dependiendo del país). A pesar de las diversas facetas positivas de CALL, todavía puede desempeñar un papel funcional en el desarrollo de competencias lingüísticas, pues habitualmente se incide en la (falta de) disponibilidad de recursos CALL como justificación habitual para su implementación limitada (Tafazoli, 2015).

Un análisis del estado de la cuestión nos indica que el uso de CALL ha sido explorado desde diferentes perspectivas. Así, una serie de investigaciones han estudiado las competencias de los profesores en la implementación de CALL y han descubierto por qué algunas herramientas y programas de CALL son más habituales que otros (Golshan y Tafazoli, 2014; Hubbard y Levy, 2006; Mumtaz, 2000; Son, Robb, y Charismiadji, 2011). Además, diversos estudios han investigado la forma en que los profesores implementan herramientas CALL en sus aulas (Eubanks, Yeh, y Tseng, 2018; Henry, Carroll, Cunliffe, y Kop, 2018; Jin, 2018; Schulze y Scholz, 2018; Yang, 2018). Aunque muchos estudiosos abordan las actitudes de los profesores hacia CALL (véase, por ejemplo, Lam, 2000), la mayoría de los análisis previos sobre las actitudes hacia CALL se sitúan en una cultura y contexto particulares.

Por otra parte, son numerosos los estudios que han investigado las actitudes de los estudiantes hacia CALL (p. ej. Hamid, Waycott, Kurnia, y Chang, 2015; Heflin, Shewmaker, y Nguyen, 2017; Horvat, Dobrotaa, Krsmanovic, y Cudanova, 2013; Kung, 2018; Lin, Warschauer, y Blake, 2016; Lintunen, Mutta, y Pelttari, 2017; Ozdamli y Uzunboylu, 2015; Pinto-Llorente, Sánchez-Gómez, García-Peñalvo, y Casillas-Martín, 2016; Riemer y Schrader, 2015; Wright, 2017). En España, Pinto-Llorente et al. (2016) analizaron las actitudes positivas hacia la tecnología de una muestra de alumnado español, destacando lo siguiente: (1) fomento del aprendizaje autónomo e individualizado, (2) entorno natural y real (exposición auténtica) y materiales auténticos para la práctica de la lengua, (3) desarrollo del aprendizaje colaborativo, (4) flexibilidad, (5) aumento de la motivación de los estudiantes, y (6) posibilidad de realizar una autoevaluación continua. Asimismo, podemos destacar que Hamid et al. (2015) llevaron a cabo un estudio intercultural sobre las percepciones de los estudiantes malayos y australianos respecto al uso de las tecnologías sociales con el fin de mejorar las interacciones en el aprendizaje de idiomas, donde destacaron los siguientes aspectos clave: (1) mayor implicación con respecto al contenido, (2) mejora en el aprendizaje entre iguales, (3) desarrollo del pensamiento crítico, (4) fomento del aprendizaje autónomo, (5) seguimiento individualizado del progreso del aprendizaje, (6) interacción con el profesorado, y (7) entorno de aprendizaje agradable e interactivo.

A pesar de todo lo anterior, ningún análisis ha abordado cualitativamente las actitudes y percepciones del profesorado y del alumnado de lenguas extranjeras en entornos culturales diferentes, a pesar de que los estudios interculturales son un modo efectivo de explorar los rasgos psicológicos (Matsumoto y Yoo, 2006) que pueden proporcionar una mejora educativa (Stigler y Hiebert, 1999). A tenor de lo expuesto anteriormente, y teniendo en cuenta la importancia de los estudios interculturales en el ámbito educativo, este trabajo plantea la siguiente pregunta de investigación: ¿Cuáles son las fortalezas, debilidades, oportunidades y amenazas de CALL para el proceso de enseñanza-aprendizaje de lenguas extranjeras de acuerdo con las percepciones y actitudes de docentes y estudiantes iraníes y españoles?

Para responder a esta pregunta, tras esta introducción, se presenta la metodología, prestando especial atención a los procedimientos de recolección de datos cualitativos y a la realización de la matriz DAFO (acrónimo correspondiente a Debilidades, Amenazas, Fortalezas y Oportunidades), incluyendo tres matrices (docentes, alumnado y comparativa profesorado-alumnado) en la sección de resultados. Finalmente, en el último apartado, se discuten las implicaciones y las limitaciones del estudio. Hemos de destacar que, en este trabajo, el aprendizaje de idiomas asistido por ordenador (CALL) se entiende como cualquier aplicación de la tecnología para la enseñanza y el aprendizaje de idiomas (Tafazoli, Gómez, y Huertas, 2018).

2 METODOLOGÍA

2.1. Participantes

Este estudio se realizó en el curso 2017-2018 en Irán y España, siendo la población meta el profesorado y el alumnado de lenguas extranjeras. La muestra total contaba con 318 profesores y 307 estudiantes de lenguas extranjeras. Se pidió a los participantes de ambos grupos que respondieran a un total de diez preguntas abiertas de forma voluntaria, para lo cual se utilizó un cuestionario en línea creado en Google Forms. Finalmente, 277 de los 318 docentes y 237 de los estudiantes proporcionaron respuestas válidas para el estudio.

Entre los participantes del grupo de profesorado, el 50,9% eran docentes iraníes, mientras que el 49,1% eran españoles, como se ilustra en la Tabla 1. Además, las mujeres eran el género dominante en este grupo (64,6 %), mientras que 98 de los 277 participantes de la muestra eran varones (35,4 %).

Tabla 1. *Distribución de los participantes del grupo de profesorado de inglés como lengua extranjera de acuerdo con su nacionalidad y género*

País	Género	N.º Participantes
Irán	Masculino	58
	Femenino	83
	Total	141
España	Masculino	40
	Femenino	96
	Total	136
Total	Masculino	98
	Femenino	179
	Total	277

Fuente: Elaboración propia

Con respecto al grupo del alumnado, el 62,9% eran iraníes y el 37,1% españoles, como se muestra en la Tabla 2. Además, las mujeres fueron nuevamente el género

dominante (75,1 %), mientras que 59 de los 237 (24,9 %) participantes de la muestra eran hombres.

Tabla 2. *Distribución de los participantes del grupo de estudiantes de inglés como lengua extranjera de acuerdo con su nacionalidad y género*

País	Género	N.º Participantes
Irán	Masculino	33
	Femenino	116
	Total	149
España	Masculino	26
	Femenino	62
	Total	88
Total	Masculino	98
	Femenino	178
	Total	237

Fuente: Elaboración propia

En la Tabla 3 se recoge la distribución de los profesores de acuerdo con su titulación: Licenciatura/Grado, Máster y Doctorado. El grupo minoritario en términos de nivel educativo fue Licenciatura/Grado, con un total de 44 participantes, mientras que el grupo principal fue el de docentes con Máster, con 151 participantes.

Tabla 3. *Distribución de los participantes del grupo de profesorado de inglés como lengua extranjera de acuerdo con su nivel educativo*

País	Titulación	N.º Participantes
Irán	Licenciatura/Grado	24
	Máster	78
	Doctorado	39
España	Licenciatura/Grado	20
	Máster	73
	Doctorado	43
Total	Licenciatura/Grado	44
	Máster	151
	Doctorado	82

Fuente: Elaboración propia

De igual modo, la distribución de las titulaciones del grupo de estudiantes tampoco fue uniforme en la muestra (véase Tabla 4). El grupo minoritario en términos de nivel educativo fue el de estudiantes de lengua con Doctorado, que sumaron 31 participantes, mientras que el grupo principal correspondía con Licenciatura/Grado, con 107 respuestas.

Tabla 4. *Distribución de los participantes del grupo de estudiantes de inglés como lengua extranjera de acuerdo con su nivel educativo*

País	Titulación	N.º Participantes
Irán	Licenciatura/Grado	73
	Máster	59
	Doctorado	17
España	Licenciatura/Grado	34
	Máster	40
	Doctorado	14
Total	Licenciatura/Grado	107
	Máster	99
	Doctorado	31

Fuente: Elaboración propia

4.2 Instrumento

Para validar el instrumento, los investigadores decidieron aplicar la metodología Delphi, de manera que el cuestionario inicial para esta investigación fue diseñado y enviado a veinte doctores expertos en las siguientes áreas Lingüística Aplicada, Ciencias de la Computación, Enseñanza del Inglés como Lengua Extranjera y CALL, y procedentes de diferentes partes del mundo como Irán, España, Estados Unidos y Reino Unido, entre otros.

La fase de recolección y análisis de datos del estudio Delphi estuvo guiada por tres aspectos clave: el descubrimiento de opiniones, el proceso de determinación de los temas más importantes y la gestión de los comentarios (Keeney, Hasson, y McKenna, 2000). En primer lugar, los investigadores trataron de descubrir las opiniones de los expertos para llegar a un consenso sobre el contenido del cuestionario. En segundo lugar, después de recoger las opiniones de los expertos, los datos se analizaron mediante la técnica de análisis de contenido. Por último, y tras tres rondas de análisis y consenso, los investigadores acordaron la versión final del cuestionario.

Tras este proceso, finalmente el cuestionario estuvo compuesto por 14 preguntas de información demográfica y 10 preguntas abiertas. La recogida de datos en forma de cuestionario es uno de los métodos más habituales para analizar percepciones y opiniones en una investigación a gran escala (Mackey, y Gass, 2005). En este sentido, Phellas, Bloch, y Seale (2011) señalan algunas ventajas de los cuestionarios en línea:

> (1) Web page surveys are extremely fast. (2) No cost is involved once the set-up has been completed. (3) You can show pictures, video and play sound. (4) Web page questionnaires can be set with skip instructions. (5) Web page questionnaires can use colours, fonts and other formatting options not possible in most email surveys. (6) A significant number of people will give more honest answers to questions. (7) People give longer answers to open-ended questions. (8) Survey answers can be combined with pre-existing information you have about individuals taking a survey. (p. 190)

Los cuestionarios en línea proporcionan la entrada y codificación automática de datos así como su edición y evaluación; de igual modo, los participantes en este estudio pudieron acceder de manera autónoma y flexible a través de los enlaces en línea proporcionados.

4.3 Diseño de la investigación

Este estudio cualitativo incluyó preguntas abiertas para conocer las percepciones de profesorado y alumnado de inglés como lengua extranjera de Irán y de España hacia CALL. El análisis DAFO de los datos recolectados se realizó manualmente, si bien el análisis estadístico incluyó el análisis del contenido de los datos cualitativos para clasificarlos y alinearlos en la matriz DAFO. En el presente estudio se aplicó el análisis de contenido, una técnica de investigación para hacer inferencias replicables y válidas de los datos a su contexto (Krippendorf, 1980) que emplea un conjunto de procedimientos para hacer inferencias válidas a partir del texto (Weber, 1990).

4.4 Análisis de datos

El análisis DAFO busca identificar las debilidades, amenazas, fortalezas y oportunidades de un fenómeno, a fin de analizar los factores que intervienen en él para mejorar y predecir las posibles dificultades, buscando la planificación estratégica a corto y a largo plazo (Thamrin y Pamungkas, 2017).

En este estudio se aplicaron varios pasos para realizar el análisis DAFO, a saber: (a) recopilación de información, (b) categorización de los datos en debilidades, amenazas, fortalezas y oportunidades, (c) determinación del valor de cada factor, y (d) presentación del resultado en una matriz.

En este estudio, los investigadores construyeron un sistema basado en cuestionarios para automatizar el proceso de análisis DAFO (ver Figura 1), de modo que la matriz se elaboró a partir de las respuestas al cuestionario de los participantes de dos países (Irán y España). La respuesta a cada una de las preguntas abiertas del cuestionario fue de carácter cualitativo, de modo que necesitaron un procesamiento de texto en forma de análisis de contenido para ayudar a determinar si la respuesta era de carácter positivo o negativo.

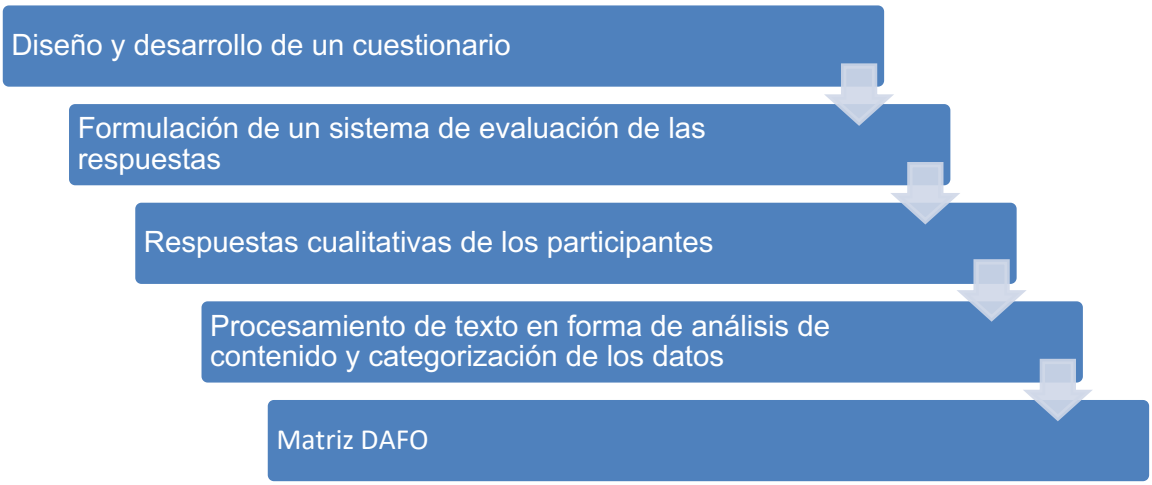

Figura 1. Proceso de análisis de datos. Fuente: Elaboración propia.

Las respuestas cualitativas fueron procesadas mediante el análisis de contenido antes de ser clasificadas en la matriz DAFO. Los investigadores aplicaron el análisis de contenido para categorizar los datos de texto en respuestas positivas o negativas, tras lo cual se calculó la ponderación de las puntuaciones y se categorizó el contenido. Posteriormente, se clasificaron los factores en categorías DAFO de acuerdo con el contenido de los datos cualitativos. Los investigadores adoptaron el Modelo de Reglas (Thamrin y Pamungkas, 2017) para categorizar los factores basados en las respuestas de los participantes (ver Tabla 5).

Tabla 5. *Modelo de reglas (basado en Thamrin y Pamungkas, 2017)*

		Valoración	
		Positivo	**Negativo**
Factor	**Interno**	Fortaleza	Debilidad
	Externo	Oportunidad	Amenaza

Fuente: Elaboración propia.

El Modelo de Reglas discrimina las respuestas basadas en factores externos e internos. Posteriormente, los investigadores categorizaron las respuestas basándose en sus puntuaciones positivas o negativas, clasificándose estas directamente en función de su contenido para la realización de la matriz DAFO.

3 RESULTADOS

Antes de analizar los resultados, los investigadores quieren señalar que la matriz DAFO de este estudio fue diseñada desde el punto de vista del profesorado y del alumnado y, por tanto, puede ser muy diferente de otros grupos (por ejemplo, administradores). En primer lugar, se presenta la matriz DAFO de los resultados del profesorado; a continuación, se recoge la matriz DAFO de los resultados del

alumnado; finalmente, se presenta una matriz conjunta con aspectos clave que comparten ambos grupos.

Por lo tanto, los factores internos son los que tienen que ver con los profesores, mientras que los factores externos tienen que ver con los estudiantes y la propia tecnología.

3.1 Matriz DAFO de las percepciones y actitudes del profesorado hacia CALL

En esta matriz, los factores internos están relacionados con el profesorado, mientras que los factores externos tienen que ver con el alumnado y la propia tecnología.

Tabla 6. *Matriz DAFO del profesorado de lenguas extranjeras de Irán y de España (por frecuencia de respuesta).*

Fortalezas	**Debilidades**
• La enseñanza mediante CALL es cómoda y fácil de usar (ES/IR) • Enseñar con CALL es divertido (ES/IR) • CALL facilita que el entorno, los materiales y la comunicación sean ricos y auténticos (ES/IR) • Ahorro de tiempo (ES/IR) • CALL aumenta la creatividad de los docentes (ES/IR) • CALL mantiene a los maestros actualizados (IR) • CALL permite un mayor control en el aula a través de CALL (ES/IR) • CALL es útil (ES/IR) • CALL permite la enseñanza y el aprendizaje personalizado / individualizado (ES/IR) • Se puede utilizar en cualquier momento y lugar (ES/IR) • CALL mejora la colaboración e interacción entre pares (ES) • CALL aumenta la calidad de la enseñanza (IR) • CALL sirve para cubrir todas las destrezas lingüísticas (ES) • CALL complementa la labor docente (ES)	• Existe una falta de competencia digital / en el uso de CALL por parte de los docentes (ES/IR) • CALL permite un menor control del profesor sobre los alumnos (ES/IR) • La implementación de CALL es abrumadora (ES/IR) • La implementación de CALL requiere demasiado trabajo (ES) • Existe una falta de confianza del profesor en el uso de CALL (ES) • CALL pone nerviosos a los docentes (IR)
Oportunidades	**Amenazas**
• Variedad y versatilidad de materiales en CALL (ES/IR) • CALL aumenta el interés y la motivación del alumnado (ES/IR) • Interactividad (ES/IR) • Flexibilidad (ES/IR) • CALL aumenta la participación del alumnado (ES/IR) • Fomento del aprendizaje autónomo a través de CALL (ES/IR)	• Fallos técnicos / mal funcionamiento / averías (ES/IR) • Cuestiones técnicas (ES/IR) • Falta de materiales CALL estandarizados (ES/IR) • CALL consume mucho tiempo (ES/IR) • Confusión y distracción de los estudiantes a través de CALL (ES/IR)

• Eficiencia (ES/IR) • Mayor atractivo (ES/IR) • CALL proporciona a los estudiantes una retroalimentación instantánea e individualizada (ES/IR) • CALL ofrece un sinfín de oportunidades (ES/IR) • Dinamismo (ES/IR) • CALL mantiene la atención del alumnado (ES/IR) • CALL aumenta la autonomía del alumnado (ES/IR) • Los docentes desarrollan diferentes estilos de aprendizaje a través de CALL (ES/IR) • CALL disminuye el estrés del alumnado (IR) • CALL estimula la curiosidad del alumnado (ES) • CALL aumenta el interés por aprender (ES) • CALL hace a los estudiantes activos (ES) • CALL evita las inhibiciones de los estudiantes (IR) • CALL aporta innovación y novedad (ES/IR) • Adaptabilidad (ES) • CALL proporciona diferentes tipos de *input* (ES) • Multimodal (IR) • CALL mejora el pensamiento crítico del estudiante (IR)	• Falta de infraestructura o equipos antiguos (ES/IR) • Poco fiable (ES/IR) • CALL disminuye la comunicación cara a cara y oral (IR) • Existe una falta de competencia digital / en el uso de CALL por parte de los estudiantes (ES/IR) • CALL puede sustituir a los docentes (ES) • Equipos e instalaciones costosas (ES/IR) • Difícil de utilizar / implementar (ES/IR) • Las tecnologías requieren mucho mantenimiento (ES/IR) • Malos contenidos en algunos sitios web (ES/IR) • CALL no puede ser independiente (ES) • El *feedback* no siempre es preciso a través de CALL (ES) • Dependencia excesiva de los estudiantes hacia CALL (IR)

(Clave: IR: profesores de inglés como lengua extranjera de Irán; ES: profesores de inglés como lengua extranjera de España)

Fuente: Elaboración propia.

3.2 Matriz DAFO de las percepciones y actitudes del alumnado hacia CALL

En la siguiente matriz, los factores internos están relacionados directamente con los estudiantes, mientras que los factores externos tienen que ver con los profesores y la propia tecnología.

Tabla 7. *Matriz DAFO del alumnado de lenguas extranjeras de Irán y de España (por frecuencia de respuesta).*

Fortalezas	Debilidades
• CALL ofrece una amplia gama de herramientas, recursos y materiales (IR/ES) • CALL ayuda al alumnado a aprender de manera más eficiente y efectiva (IR/ES) • CALL mejora el aprendizaje de idiomas (IR/ES) • CALL proporciona comunicación real con hablantes nativos (IR/ES) • CALL disminuye la ansiedad y el estrés del alumnado (IR/ES) • CALL proporciona una retroalimentación inmediata, imparcial y constante (IR/ES) • CALL fomenta el aprendizaje autónomo (IR/ES)	• Falta de conocimientos de los estudiantes sobre CALL / competencia digital / tecnología (IR/ES) • CALL distrae a los estudiantes (IR/ES) • CALL disminuye las interacciones cara a cara (IR/ES) • CALL no proporciona información concisa (IR/ES) • CALL hace que los estudiantes dependan más de la tecnología (IR/ES) • La variedad de materiales de CALL confunde a los alumnos (IR)

• CALL aumenta las interacciones entre pares (IR/ES) • CALL proporciona materiales auténticos (IR/ES) • CALL aumenta la motivación del alumnado (IR/ES) • CALL facilita el aprendizaje (IR/ES) • CALL aumenta la confianza del alumnado (IR) • CALL impulsa el aprendizaje personalizado (IR/ES) • El alumnado puede seguir su progreso a través de CALL (IR) • CALL se adapta a diferentes estilos de aprendizaje (IR)	• Los estudiantes no se sienten seguros cuando usan CALL (IR) • CALL no aborda todos los estilos de aprendizaje (ES)
Oportunidades	**Amenazas**
• CALL es divertido e interesante (IR/ES) • Aprender con CALL es cómodo y fácil (IR/ES) • CALL es accesible y está disponible (IR/ES) • El trabajo con CALL es rápido (IR/ES) • Aprendizaje en cualquier momento y en cualquier lugar (IR/ES) • CALL es flexible (IR/ES) • CALL es moderno y actual (IR/ES) • Trabajar con CALL ahorra tiempo, dinero y energía (IR/ES) • CALL es preciso (IR) • CALL es interactivo (IR/ES) • CALL es atractivo (IR/ES) • CALL es fácil de usar (IR/ES)	• Dificultades técnicas (IR/ES) • Fallos en CALL (IR/ES) • Falta de instalaciones e infraestructura (IR/ES) • Trabajar con CALL lleva mucho tiempo (IR/ES) • CALL es caro (IR) • CALL es aburrido (IR) • CALL no siempre está disponible (IR) • Efectos negativos sobre la salud (IR/ES) • Contenidos de baja calidad (IR/ES) • CALL dificulta el papel de los docentes (IR/ES) • CALL no proporciona suficientes directrices (IR) • Falta de competencia de los docentes en CALL / informática /tecnología (IR) • CALL es complejo y no es fácil de usar (ES) • CALL no es fiable (IR)

(Clave: IR: estudiantes de inglés como lengua extranjera de Irán; ES: estudiantes de inglés como lengua extranjera de España)

Fuente: Elaboración propia.

3.3 Matriz DAFO de las similitudes en percepciones y actitudes de profesorado y alumnado

A continuación se recoge una matriz DAFO global que recoge las similitudes en las percepciones y actitudes del profesorado y del alumnado de inglés como lengua extranjera en los dos países objeto de estudio (Irán y España).

Tabla 8. *Matriz DAFO global*

Fortalezas	**Debilidades**
• CALL mejora el aprendizaje de idiomas al cubrir todas las destrezas (IR/ES) • CALL fomenta el aprendizaje autónomo (IR/ES)	• Falta de competencia digital tanto de docentes como de estudiantes (IR/ES) • La implementación de CALL es abrumadora, tanto para el profesorado (requiere demasiado

• CALL aumenta las interacciones entre pares (IR/ES) • CALL proporciona materiales auténticos y situaciones de comunicación reales (IR/ES) • CALL facilita el aprendizaje (IR/ES) • CALL impulsa el aprendizaje personalizado (IR/ES).	trabajo (ES)) y hace que el alumnado no se sienta seguro cuando usan CALL (IR) • CALL no aborda todos los estilos de aprendizaje (ES)
Oportunidades	**Amenazas**
• CALL aumenta el interés y la motivación del alumnado (ES/IR), mejorando la calidad de la docencia • Flexibilidad, eficiencia, dinamismo y rapidez (IR/ES) • Aprendizaje en cualquier momento y en cualquier lugar (IR/ES) • CALL es interactivo (IR/ES) y proporciona a los estudiantes una retroalimentación instantánea e individualizada (ES/IR) • CALL aumenta la autonomía del alumnado (ES/IR)	• Fallos técnicos / mal funcionamiento / averías (ES/IR) • Trabajar con CALL consume mucho tiempo (IR/ES) • Falta de alfabetización digital del alumnado y del profesorado (ES/IR) • Equipos e instalaciones costosas (ES/IR) • Contenidos de baja calidad en algunos sitios web (ES/IR) • CALL no proporciona suficientes directrices (IR), de modo que puede causar confusión y distracción del alumnado (ES/IR)

(Clave: IR: participantes iraníes; ES: participantes españoles)

Fuente: Elaboración propia.

4 DISCUSIÓN Y CONCLUSIÓN

El propósito de este estudio intercultural ha sido explorar las fortalezas, oportunidades, debilidades y amenazas del aprendizaje de lenguas asistido por ordenador (CALL) basado en las actitudes y percepciones de profesorado y estudiantes de inglés como lengua extranjera en Irán y España, a fin de ver las similitudes y diferencias existentes entre ambos contextos y grupos de participantes, teniendo en cuenta que las actitudes y percepciones son los primeros determinantes de la intención individual de actuar (Rababah y Rababah, 2017). Para cumplir con el final del estudio, los investigadores aplicaron la metodología Delphi, el análisis DAFO y el análisis de contenido.

Los resultados revelaron que entre los diferentes factores en la categoría de fortalezas podemos destacar: (1) la mejora el aprendizaje de idiomas al cubrir todas las destrezas lingüísticas, (2) el fomento del aprendizaje autónomo, (3) el aumento de las interacciones entre pares y (4) el uso de materiales auténticos y situaciones de comunicación reales. Así mismo, resultan oportunidades destacables: (1) aumento del interés y la motivación del alumnado mejorando así la calidad de la docencia, (2) su flexibilidad, eficiencia, dinamismo y rapidez, (3) el aprendizaje en cualquier momento y en cualquier lugar, (4) su carácter interactivo y (5) el aumento de la autonomía del alumnado. Por otra parte, entre las debilidades señalamos: (1) la falta de competencia digital tanto de docentes como de estudiantes, (2) el hecho de que la implementación de CALL es abrumadora y que (3) CALL no aborda todos los estilos de aprendizaje. Finalmente, en relación con las amenazas, los participantes coinciden en: (1) la abundancia de fallos técnicos, (2) el consumo de tiempo, (3) la falta de alfabetización digital del alumnado y del profesorado, (4) el coste de equipos e instalaciones, y (5) la baja calidad de contenidos CALL en algunos sitios web.

Este estudio sugiere que la implementación efectiva de CALL en la enseñanza y el aprendizaje de lenguas se ve obstaculizada por una serie de factores clave que afectan tanto a docentes como a alumnos. Así, y de acuerdo con los resultados obtenidos, se puede señalar una serie de consideraciones sobre la implementación de CALL en la enseñanza de lenguas extranjeras, entre las que destacamos: (1) desarrollar más programas de formación para mejorar la competencia digital de profesorado y alumnado; (2) mejorar la dimensión cognitiva de profesorado y alumnado para cuestiones como la falta de confianza o el nerviosismo, entre otros.; (3) desarrollar y distribuir de materiales estandarizados de CALL de acuerdo con estándares de calidad; y (4) animar a las instituciones a realizar una evaluación adecuada sobre la integración de las herramientas TIC en los procesos de enseñanza-aprendizaje.

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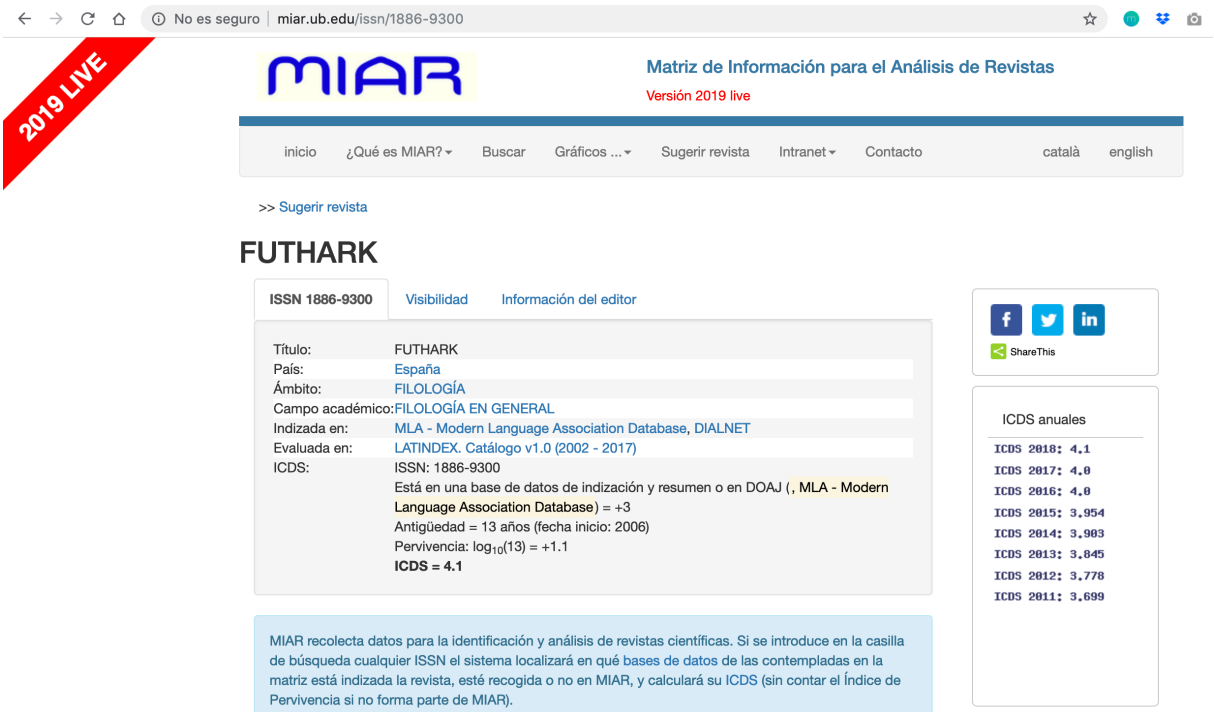
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Título: FUTHARK
País: España
Ámbito: FILOLOGÍA
Campo académico: FILOLOGÍA EN GENERAL
Indizada en: MLA - Modern Language Association Database, DIALNET
Evaluada en: LATINDEX. Catálogo v1.0 (2002 - 2017)
ICDS: ISSN: 1886-9300
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MIAR recolecta datos para la identificación y análisis de revistas científicas. Si se introduce en la casilla de búsqueda cualquier ISSN el sistema localizará en qué bases de datos de las contempladas en la matriz está indizada la revista, esté recogida o no en MIAR, y calculará su ICDS (sin contar el Índice de Pervivencia si no forma parte de MIAR).
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ICDS 2013: 3.845
ICDS 2012: 3.778
ICDS 2011: 3.699

6. Study 5: Attitude towards Computer-Assisted Language Learning: Do Gender, Age, and Educational Level Matter?

Attitude towards Computer-Assisted Language Learning: Do Gender, Age, and Educational Level Matter?

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Abstract

The purpose of present cross-cultural study was to explore the relationships of second and foreign language teachers' and students' attitudes towards Computer-Assisted Language Learning (CALL) in terms of their gender, age group, and educational level in two countries, Spain and Iran. The study was based on a sample of 318 language teachers and 307 language students in Iran and Spain. Data collection was carried out through two online questionnaires (108 items) for both teachers and students. To make a sound decision, the researchers agreed to utilize the Delphi methodology, which was originally established in order to diagnose the beneficiary of technologies. In the data analysis phase, descriptive, t test and one-way ANOVA analyses were performed to find the answers of the research questions. The findings of the study revealed that there is no difference between the attitudes of Iranian and Spanish towards CALL in terms of gender, age and educational matter. Finally, pedagogical implications and recommendations for further research are presented.

Keywords: Computer-Assisted Language Learning (CALL), Cross-cultural study, Attitudes, Gender, Age, Educational level

1. Introduction

The emergence of new technologies may lead to the more effective teaching and learning in different fields of study. Teachers and learners of either a second or a foreign language are also aware of the current waves of technologies in their field. Hence, they should enhance their "Computer-Assisted Language Learning (CALL) literacy" (Tafazoli, 2014, 2017; Tafazoli & Gómez, 2017) to meet the criteria of 21st century educational needs. Lasagabaster and Sierra (2003) note that students are excessively engaged in using CALL, and teachers make gargantuan attempts to integrate CALL into their syllabus and curriculum. Therefore, forethoughtful teachers and students promptly recognize the urgency of improving their "CALL literacy".

A considerable number of studies focus on the applications of CALL in language classrooms (e.g. Chapelle, 2001; Gruba, 2006; Stockwell, 2012). Nevertheless, it should be taken into account that language teaching and learning processes could be moderated or controlled by individual differences (Ellis, 2006). In this light, one of the aspects of individual differences is attitude. Attitude is a conglomerate of cognitive, behavioral and affective components (Fishbein & Ajzen, 1975; Kiesler, Collins & Miller, 1969; Mantle-Bromley, 1995; Mantle-Bromley & Miller, 1991) which will be explained in next section. Regarding CALL, however, both teachers and students' attitudes towards innovative teaching methodologies and technologies is a must (Tafazoli, Gómez & Huertas, 2018) as their positive or negative attitudes and perceptions may have a significant impact on the failure or success of the language teaching and learning process (Lasagabaster & Sierra, 2003).

Although many scholars address teachers' and students' attitudes towards CALL (e.g. Bebell, O' Conner, O' Dwyer & Russell, 2003; Lam, 2000; Smith, 2003; Warschauer, 2003), several demographic features such as gender, age, educational level, etc. may also influence an individual attitude. Whether the use of CALL may benefit every individual language teacher and learner, the relationship between attitude and genders, age groups and educational levels is vague. Above that, scrutinizing the literature shows that most of the prior studies on attitudes towards CALL is explored within a particular culture and context, however

a cross-cultural dimension in such studies has been missed. A cross-cultural study is an effective way to explore the psychological traits (Matsumoto & Yoo, 2006) which can provide educational improvement (Stigler & Hiebert, 1999).

The present cross-cultural study aims to explore the relationships of second and foreign language teachers' and students' attitudes towards CALL in terms of their gender, age group, and educational level in two countries, Spain and Iran. The researchers seek to find these relationships from a developed country (Spain) and developing country (Iran) in order to find out to what extent the findings of a research on a developed country can be utilized in a developing country and vice versa. In other words, in Western and European countries, extensive research examined the effectiveness of CALL but the results cannot be extrapolated to the Iranian culture based on their age, gender and/or educational levels.

Therefore, our study seeks to answer the following research questions:

RQ1: Is there any significant difference among the Spanish and Iranian language students' attitudes towards the use of CALL in terms of gender?
RQ2: Is there any significant difference among the Spanish and Iranian language teachers' attitudes towards the use of CALL in terms of gender?
RQ3: Is there any significant difference among the Spanish and Iranian language students' attitudes towards the use of CALL in terms of their age?
RQ4: Is there any significant difference among the Spanish and Iranian language teachers' attitudes towards the use of CALL in terms of their age?
RQ5: Is there any significant difference among the Spanish and Iranian language students' attitudes towards the use of CALL in terms of their educational level?
RQ6: Is there any significant difference among the Spanish and Iranian language teachers' attitudes towards the use of CALL in terms of their educational level?

2. Conceptual framework: The multicomponent model of attitude

In Psychology, attitude is a way in which individuals express their favor or disfavor towards anything. The degree of favor or disfavor could range from extremely positive to extremely negative. Defining attitude is argumentative among scholars. As Eagly and Chaiken (1998) state, "attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1). However, in Wenden's (1998) perspective, attitude is a set of "learned motivations, valued beliefs, evaluations, what one believes is acceptable, or responses oriented towards approaching or avoiding" (p. 52). The multicomponent model of attitude proposed attitude based on three main domains: (1) cognitive, (2) behavioral, and (3) affective domain (Fishbein & Ajzen, 1975; Kiesler, Collins & Miller, 1969; Mantle-Bromley, 1995; Mantle-Bromley & Miller, 1991).

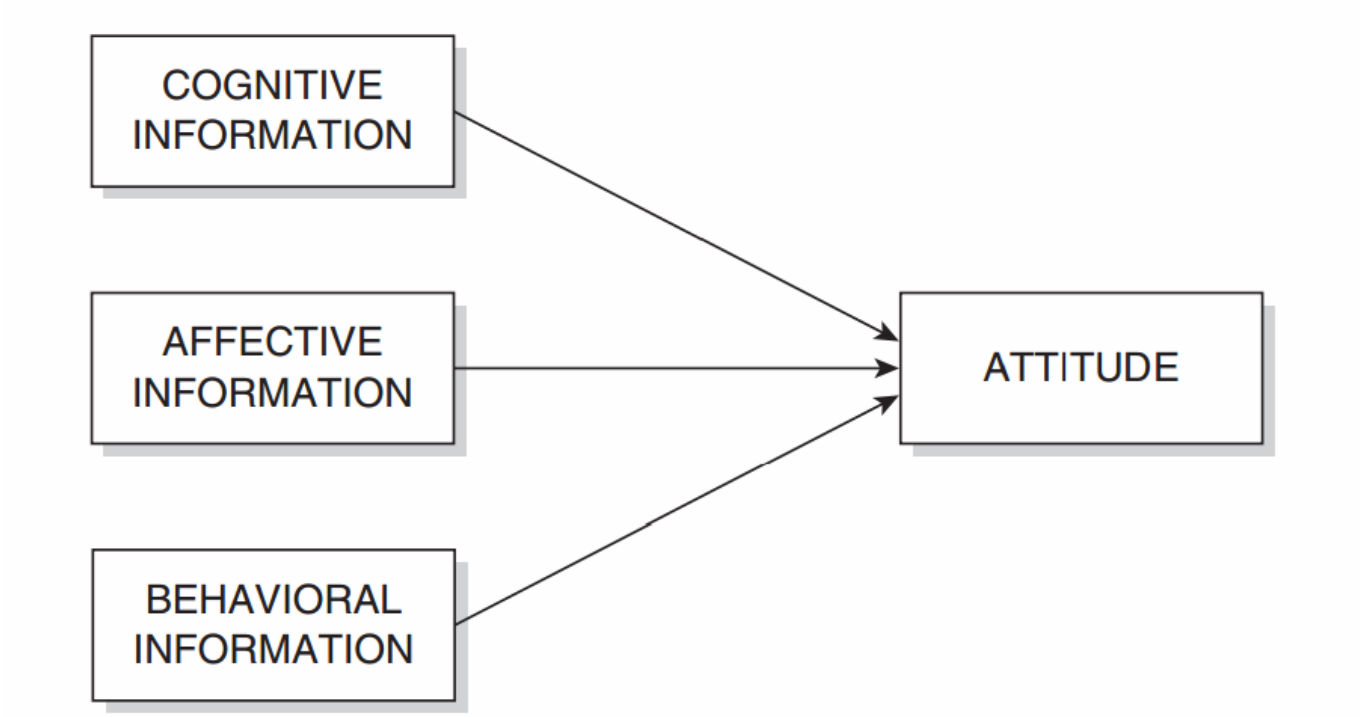

Figure 1. The Multicomponent Model of Attitude (Tafazoli, Gómez & Huertas, 2018, p. 40)

In the field of study of CALL, each domain of attitudes refers to a specific property. The cognitive component deals with the amount of knowledge a person has on a specific domain; in CALL thus the cognitive component relates to computer literacy (Maushak & Simonson, 2001). The second domain, behavioral component, is an overt performance of a person towards an object. From CALL point of view, this component refers to the experience of the language teacher or learner in applying technologies in language teaching and learning. In other words, the more experience in using computer, the more positive attitudes towards computers and vice versa (Maushak & Simonson, 2001). The third domain, affective component, deals with an attitude object. Our feelings or emotions that are associated with an attitude object define the affective component. To put it simple, when a teacher assumed that a CALL tool (e.g. vodcast) made their teaching more effective, it deals with affective component of attitude. Notwithstanding, all the components of the attitudes are not identical, they are interwoven, that is, they have a synergetic relation (Breckler, 1984).

3. Review of Literature

In Spain, Pinto-Llorented, Sánchez-Gómez, García-Peñalvo and Casillas-Martín (2017) quantitatively scrutinize the students' attitudes and perceptions towards asynchronous technological tools (podcast, vodcast, online tests, online glossary and forums). 358 students (male: 23.2%, female: 76.8%) ranged in age from 20 to 58 were recruited to participate in this study. The researchers applied questionnaires as a pre-test (36 items) during the first week of the semester and post-test (39 items) during the last week of the semester included open/closed, yes/no and Likert Scale items which were posted on the Virtual Learning Environment (VLE). The findings confirmed the positive attitudes and perceptions of students towards applied asynchronous technological tools. Pinto-Llorented et al. (2017) counted some reasons for positive perceptions of students: 1) students' greater autonomy with technology, 2) a provided natural environment and authentic materials via VLE, 3) opportunity to have a collaborative and independent learning through e-activities, 4) anytime and anywhere nature of the mobile learning devices, 5) motivational and interesting features of e-activities, and 6) continuous assessment and self-assessment properties of e-activities which give students necessary feedback based on their weaknesses.

In a cross-cultural study, Tafazoli, Gómeza and Huertas (2018) compared the attitudes of Iranian and non-Iranian English language students' attitudes towards CALL. The participants of this study were 415 students (Iranian: 34.7%, non-Iranian: 65.3%) from 61 countries around the world. The researchers used a convergent mixed methods design, and applied an online 44-item web-based questionnaire as an instrument

for data collection. The questionnaire consists of five sections. In a quantitative phase, it includes: background information, computer literacy, students' attitudes towards CAL (computer-assisted learning) and students' attitudes towards CALL; and in a qualitative phase, there are two open-ended questions. The findings of the study approve that there were not any significant differences between the attitudes of Iranian and non-Iranian English language students toward the application of CALL. These authors decided to explore their research question in every construct of the study, and after applying the non-parametric test of Mann-Whitney, the researchers found:

> "…significant differences between the computer literacy as well as between the attitudes of Iranian and non-Iranian English students toward CALL.... Thereafter, it could be argued that as far as computer literacy and attitudes toward CALL are concerned, statistically significant differences exist between the data drawn from Iranian and non-Iranian English students. The only construct on which Iranian and non-Iranian students did not report any significant difference was the general attitude towards CAL" (Tafazoli, Gómez & Huertas, 2018, p. 48).

In Turkey, Öz, Demirezen and Pourfeiz (2015) conducted a study in order to find the relationship between computer literacy, attitudes towards foreign language learning and CALL. The participants (N = 123) of the study were requested to respond to two instruments of the study: 1) The Attitudes towards Foreign Language Learning (AFLL) Scale (Vandewaetere & Desmet, 2009), and 2) The Attitudes towards Computer-Assisted Language Learning (A-CALL) Scale (Vandewaetere & Desmet, 2009). The findings of the study, which support prior studies on attitudes towards CALL (i.e. Akbulut, 2008; Ayres, 2002; Mahfouz & Ihmeideh, 2009; Link & Marz, 2006; Öz, 2015), indicated the positive relationships between attitudes towards foreign language learning and attitudes towards CALL. Öz, Demirezen and Pourfeiz (2015) indicated, "28% of attitudes toward[s] CALL could be predicted by attitudes toward[s] FLL" (p. 359). They concluded that attitude plays a significant role in order to improve second language learning programs and boost educational outcome.

In a global study, Lin, Warschauer and Blake (2016) explored language learners' attitudes towards a large Language Learning Social Network Sites (LLSNSs) (the focus of this study was on Livemocha) through a 23-item questionnaire. The participants of the study, Livemocha users, were 4,174 as well as 20 individual case studies. The results of the study showed that the majority of the users strongly agreed (48%) and agreed (37%) that Livemocha increased their motivation and self-confidence. Furthermore, most of the users felt that communicating with native speakers via SNSs is more comfortable than face-to-face communication. The findings revealed the general positive attitudes of language learners towards LLSNSs, however, the researchers suggested for more support, guidance, and well-structured activities that can lead to success. The findings of the study are in line with Warschauer (1996a, 1996b) and Young (2003), which showed online environments decrease affective factors such as anxiety. However, the findings inconsistent with Stevenson and Liu's (2010) study which reported on the hesitation of some users to use LLSNSs for making social interactions.

Regarding the relationship between demographic background with attitudes and CALL, Tafazoli, Gómez and Huertas (2018) studied the relationship between gender and English language students' attitudes towards CALL. Their data analysis reported the existence of no differences between the attitudes of male and female English language students toward CALL. However, there was a difference between male and female students in terms of computer literacy in favor of males. Furthermore, the researchers tried to find the effect of educational level on the attitudes of students. Similar to gender variable, no significant difference was reported after non-parametric Kruskal Wallis test for data analysis. Finally, the fourth research hypothesis dealt with age and its relationship to the attitudes towards CALL, and the findings affirmed no relationship as well.

In Turkey, Öz, Demirezen and Pourfeiz (2015) were interested in finding an answer for the difference between pre-service teachers' computer literacy, frequency of computer use, CALL experience and their attitudes toward CALL and Foreign Language Learning (FLL) with respect to their gender. The majority of the participants (N = 123) were female (91 students - 74%) and only 26% of the participants were male (32 students). Their age ranged from 18 to 22 years. The instruments applied in the study also included a demographic and background information section that collected data with regard to participants' gender, age, computer literacy and previous CALL experience. In order to analyze the collected data, the researchers employed the independent samples T-test in order to measure the role of gender factor. Data analysis showed a meaningful difference between males and females in their computer literacy and CALL

experience in favor of males. However, further data analysis revealed no significant differences between genders in relation to their attitudes toward FLL and CALL.

In another study in Turkey (Öz, 2015), the relationship between demographic factors (gender and age) and attitudes towards CALL was investigated. Among 128 undergraduate freshman students, 75% of them were female and 25% were male, and their age ranged from 18 to 22. The findings of his study revealed the fact that gender differences moderate on the students' attitudes towards CALL. However, in relation to students' perceptions of *effectiveness of CALL*, the findings indicated significant differences between genders in favor of females. On the other hand, male students' perceptions of *surplus value of CALL* were greater than females. He concluded that female students supposed learning through computers is more satisfactory. In addition, CALL augments their language proficiency in comparison to traditional language learning. In opposite, male students believed that CALL is a beneficial extension of the conventional language learning. The findings of the study are identical to Fatemi Jahromi and Salimi (2013) and in opposite of Akbulut's (2008) study, which showed no relationship between gender and attitudes towards CALL. Regarding age differences in the attitudes towards CALL, the results showed considerable differences among age groups of 18, 19, 20 and 22.

In Cyprus, Cavus (2011) conducted a study on 40 female students (43.01%) and 53 male students (56.99%) in order to find a significant difference between genders' perceptions of M-learning and Learning Management System (LMS) through the use of independent *t*-test. The findings revealed no significant difference among the students' attitudes in terms of gender category towards the integration of the new trend learning environment. The finding of the study was consistent with Uzunboylu, Cavus and Ercag (2009) in the same country; and Wang, Wu and Wang (2009) and Yang (2012) in Taiwan. According to Taleb and Sohrabi (2012) in Iran and Khaddage and Knezek (2013) in Oman, in contrary, female students were more positive towards M-learning rather than male students. Nonetheless, Uzunboylu and Ozdamli's (2011) study showed that male instructors had more positive attitudes towards M-learning than female ones. Al-Emran, Elsherif and Shaalan (2016) in a cross-cultural study in Oman and the UAE investigated the attitudes of students and faculty members towards M-learning in the higher education context in terms of their age and gender. The number of participants in Oman were 225 students and 24 faculty members and in the UAE were 158 students and 30 faculty members. The students (female: 64.8%; male: 35.2%) age ranged from 18 and 22. Moreover, 66.7% of the faculty members were males and 33.3% of them were females. The researchers employed two 28-item five-point Likert Scale questionnaires in order to collect data. An independent *t*-test noticed no differences among both educators and students' attitudes towards M-learning in terms of their gender. The findings of this study was in opposite to a study in Saudi Arabia, by Alwraikat and Al Tokhaim (2014), in which the independent *t*-test indicated that female instructors were more positive towards M-learning rather than male instructors. In order to determine the relationship between the attitudes of students towards M-learning and their age, the ANOVA of the man scores of the students' age groups (i.e. 18-22, 23-28, 29-35 and above 35) and the Tukey test for *post-hoc* comparisons were used. Data analysis indicated no statistical differences among the students' attitudes between and within age groups.

4. Methodology

4.1. Participants

The present study was based on a sample of 318 language teachers and 307 language students in Iran and Spain. As it is depicted in Table 1, 50.94% of the teachers and 69.38% of the students were Iranian. Spanish teachers and students were 49.06% and 30.62% of the sample respectively. Moreover, female was the dominant gender in the sample with over half of the teacher participants (64.46 %), and over the three quarters of students (76.54); only 185 of the 625 participants of the sample were male.

Table 1. *Distribution of participants based on their gender*

Country	Gender	Teacher	Student
Iran	Male	69	42
	Female	93	171
	Total	162	213
Spain	Male	44	30
	Female	112	64
	Total	156	94
Total	Male	113	72
	Female	205	235
	Total	318	307

Table 2 shows that the distribution of BA, MA and PhD teachers were almost equal in the sample, although this distribution was not equal in student participants. The minority group in terms of education level was the PhDs who summed to 131 participants, while the major group was MA participants with 299.

Table 2. *Distribution of participants based on their educational level*

Country	Educational Level	Teacher	Student
Iran	BA	25	106
	MA	92	81
	PhD	45	26
Spain	BA	25	39
	MA	85	41
	PhD	46	14
Total	BA	50	145
	MA	177	122
	PhD	91	40

As far as the age was concerned, as depicted in Table 3, the largest category of teacher participants (170 participants) fell within the age range of 36 and above. However, the category of 18 to 23 was the largest in student participants. On the other hand, the smallest groups in teacher and student participants were the category of 18 to 23 years old (2.51%) and the category of 30 to 35 years old (20.84%), respectively.

Table 3. *Distribution of participants based on their age groups*

Country	Age group	Teacher	Student
Iran	18-23	8	79
	24-29	30	50
	30-35	61	49
	36 and above	63	35
Spain	18-23	0	20
	24-29	15	21
	30-35	34	15
	36 and above	107	38
Total	18-23	8	99
	24-29	45	71
	30-35	95	64
	36 and above	170	73

4.2 Instrumentation

Data collection was carried out through two online questionnaires for both teachers and students. The survey in the form of a questionnaire is one of the most usual methods of data collection on attitudes and opinions in a large-scale research (Mackey & Gass, 2005). When language learners want to report on their beliefs and motivations or reactions about their language instructions, settings, activities, etc. researchers

are able to use questionnaires. Phellas, Bloch and Seale (2011) mentioned some advantages of web-based (online) surveys:

> "…(1) Web page surveys are extremely fast. (2) No cost is involved once the set-up has been completed. (3) You can show pictures, video and play sound. (4) Web page questionnaires can be set with skip instructions. (5) Web page questionnaires can use colours, fonts and other formatting options not possible in most email surveys. (6) A significant number of people will give more honest answers to questions. (7) People give longer answers to open-ended questions. (8) Survey answers can be combined with pre-existing information you have about individuals taking a survey" (Phellas et al., 2011, p. 190).

The website which provides the platform for this online questionnaire is Google Forms (https://docs.google.com). The participants had access to the questionnaire via an online link. The online questionnaires comprised 108 closed- and open-item questions within 4 main sections and 2 constructs of including: 1) background information, 2) CALL literacy, and 3) participants' attitude towards CALL. The first section of the questionnaire intended to gather data about participants' background information: country, gender, age, educational level, language teaching and learning experiences, work/study place, familiarity and access to technology in the classroom. The second section aimed to investigate the CALL literacy. The third section was focused on the participants' attitude towards CALL through twenty-eight 5-point Likert-scale items, ranging from strongly disagree (1) to strongly agree (5). In the last section, ten open-ended items asked students about their experience with and attitudes towards CALL.

Table 4. *Distribution of items on the questionnaires*

Construct	Section I	Section II	Section III
Question type	Background information	CALL literacy	Participants' attitudes towards CALL
Total	14	56	38

4.3 Measurement analysis

To make a sound decision, the researchers agreed to utilize the Delphi methodology, which was originally established in order to diagnose the beneficiary of technologies. The first draft of the questionnaire for this research was designed and emailed to 20 experts in the field. Due to the multidisciplinary nature of CALL, the researchers decided to arrange the panel of experts based on their expertise. Therefore, the panel consisted of twenty PhDs from different fields of Applied Linguistics, Computer Sciences, English Language Teaching, and Computer-Assisted Language Learning, from different parts of the world such as Iran, Spain, the USA and the UK, among others.

The data collection and analysis phase of the Delphi was guided by three issues: the discovery of opinions; the process of determining the most important issues; and managing opinions (Keeney, Hasson & McKenna, 2000). First, the researchers tried to discover the opinions to reach consensus on the content of the questionnaire. After gathering experts' opinions, data were analyzed through content analysis technique. At the end of three rounds, the researchers agreed on two parallel questionnaires.

The questionnaires contained 108 items, which measured two different constructs of CALL literacy and attitudes towards CALL. After administering this questionnaire to the teachers' sample, the researchers first checked the validity of the case processing. All the 318 cases of the sample were valid, and SPSS did not exclude the scores of any of the participants from the processing. Then, the researchers used SPSS to calculate the Cronbach's Alpha Coefficient which was .857 for 28 quantitative items of attitude towards CALL construct. This indicated that this construct enjoyed ample internal consistency. Moreover, the researchers calculated the reliability of the students' questionnaire. The internal consistency of the students' attitudes towards CALL construct enjoyed a high degree of internal consistency. The Cronbach's Alpha coefficient for this construct was .894 for 28 items.

5. Results and Discussion

RQ1: Is there any significant difference among the Spanish and Iranian language students' attitudes towards the use of CALL in terms of gender?
In order to find the answer, an independent sample of *t*-test was applied to find out if there is any statistical significant difference among Spanish and Iranian language students' attitudes towards the use of CALL in terms of gender.

Table 5. *Differences among students' attitudes in terms of their gender*

	Gender	N	Mean	Std. Deviation	Sig.	t	df
Attitude	Male	72	100.8611	14.033467	.476	.294	305
	Female	235	100.2809	14.840097			

As depicted in Table 5, the results indicate that the mean values for both male and female students do not show any significant differences among Iranian and Spanish students' attitudes towards CALL in terms of their gender. The calculated value of t is (.294) and the significance level is (p = 0.476, p > 0.05). The finding of this research question could be implied that both male and female students have the same attitudes towards CALL which emphasize the positive role of CALL in sexual justice in educational system of both contexts, Iran and Spain. The finding of this research question is in line with other studies such as Al-Emran, Elsherif and Shaalan (2016), Cavus (2011), Tafazoli, Gómez and Huertas (2018), Uzunboylu, Cavus and Ercag (2009), Wang, Wu and Wang (2009), and Yang (2012), and in contrast to Fatemi Jahromi and Salimi (2013), Khaddage and Knezek (2013), Öz (2015), Taleb and Sohrabi (2012), and Uzunboylu and Ozdamli (2011).

RQ2: Is there any significant difference among the Spanish and Iranian language teachers' attitudes towards the use of CALL in terms of gender?
Another independent sample of *t*-test was carried out to investigate if there is any statistical significant difference among Spanish and Iranian language teachers' attitudes towards the use of CALL in terms of gender.

Table 6. *Differences among teachers' attitudes in terms of their gender*

	Gender	N	Mean	Std. Deviation	Sig.	T	Df
Attitude	Male	113	99.0885	13.93259	.329	-.706	202.635
	Female	205	100.1854	11.92891			

As illustrated in Table 6, the results outlined no significant differences between Iranian and Spanish teachers' attitudes towards CALL in terms of their gender. The computed value of t is (-.706) and the significance level is (p = 0.329, p > 0.05). The finding of this research question shows that both male and female teachers have the same attitudes towards CALL. The finding is approved by other research in the field such as Akbulut (2008), Al-Emran, Elsherif & Shaalan (2016), and Öz, Demirezen & Pourfeiz (2015). In contrast, Alwraikat & Al Tokhaim (2014) claimed a significant difference among teachers' attitudes in terms of their gender.

RQ3: Is there any significant difference among Spanish and Iranian language students' attitudes towards the use of CALL in terms of their age?
To ascertain if there is any significant difference between the students' attitudes towards CALL with regard to their age, frequency, means and standard deviations for the students' age groups (i.e. 18-23, 24-29, 30-35 and 36 and above) are computed as shown in Table 7 and Table 8.

Table 7. *Frequency of students' age groups*

Age Groups	Frequency	Percent	Valid Percent	Cumulative Percent

18-23	99	32.2	32.2	32.2
24-29	71	23.1	23.1	55. 4
30-35	64	20.8	20.8	76.2
36 and above	73	23.8	23.8	100.0
Total	307	100.0	100.0	

Table 8. *Mean and standard deviation for students' attitudes in terms of their age*

	N	Mean	Std. Deviation
Age Groups	307	2.36	1.164

Furthermore, a one-way analysis of variance (ANOVA) was implemented to explore if there are any statistical significant differences between the mean scores. As displayed in Table 9, results demonstrated that there is no statistical significant differences ($p = 0.052$, $p > 0.05$) between the students' attitudes with regard to their age and the computed of F value is (2.604).

Table 9. *ANOVA results for students' attitudes in terms of their age*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1647.230	3	549.077	2.604	.052
Within Groups	63887.402	303	210.850		
Total	65534.632	306			

Although Öz (2015) believed that there is a statistical difference between students' attitudes towards CALL based on their age, the finding of this question is consistent with Al-Emran, Elsherif and Shaalan (2016) and Tafazoli, Gómez and Huertas (2018) who approved no differences.

RQ4: Is there any significant difference among the Spanish and Iranian language teachers' attitudes towards the use of CALL in terms of their age?

To discover if there is any significant difference among the teachers' attitudes towards CALL with regard to their age, frequency, means and standard deviations for the teachers' age groups (i.e. 18-23, 24-29, 30-35, and 36 and above) are computed as shown in Table 10 and 11.

Table 10. *Frequency of teachers' age groups*

Age Groups	Frequency	Percent	Valid Percent	Cumulative Percent
18-23	8	2.5	2.5	2.5
24-29	45	14.2	14.2	16.7
30-35	95	29.9	29.9	46.5
36 and above	170	53.5	53.5	100.0
Total	318	100.0	100.0	

Table 11. *Mean and standard deviation for teachers' attitudes in terms of their age*

	N	Mean	Std. Deviation
Age Groups	318	3.34	.813

Furthermore, a one-way analysis of variance (ANOVA) was implemented to explore if there are any statistical significant differences between the mean scores. As displayed in Table 12, results demonstrated that there is a statistical significant difference ($p = 0.028$, $p > 0.05$) between the students' attitudes with regard to their age and the computed of F value is (3.077).

Table 12. *ANOVA results for students' attitudes in terms of their age*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1452.568	3	484.189	3.077	.028
Within Groups	49405.145	314	157.341		
Total	50857.714	317			

In order to determine where the differences in mean scores occur, the Tukey test for *post-hoc* comparisons was used. Results revealed that there are no statistical differences among the students' attitudes between and within age groups (Table 13). This could be attributed to the fact that the age factor is distributed across four groups (18-23, 24-29, 30-35, and 36 and above). Therefore, it is very difficult to determine where the difference may occur.

Table 13. *Post-hoc Tukey test for students' attitudes towards CALL on age groups variable*

		Mean			95% Confidence Interval	
(I) Age	(J) Age	Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
18-23	24-29	-3.85556	4.81291	.854	-16.2865	8.5754
	30-35	-6.32105	4.61778	.520	-18.2480	5.6059
	36 and above	-1.61176	4.53797	.985	-13.3326	10.1091
24-29	18-23	3.85556	4.81291	.854	-8.5754	16.2865
	30-35	-2.46550	2.26995	.698	-8.3284	3.3974
	36 and above	2.24379	2.10286	.710	-3.1876	7.6751
30-35	18-23	6.32105	4.61778	.520	-5.6059	18.2480
	24-29	2.46550	2.26995	.698	-3.3974	8.3284
	36 and above	4.70929*	1.60679	.019	.5592	8.8594
36 and above	18-23	1.61176	4.53797	.985	-10.1091	13.3326
	24-29	-2.24379	2.10286	.710	-7.6751	3.1876
	30-35	-4.70929*	1.60679	.019	-8.8594	-.5592

RQ5: Is there any significant difference among the Spanish and Iranian language students' attitudes towards the use of CALL in terms of their educational level?

The researchers used an independent samples *t*-test in order to find out if there is any statistical significant difference among the students' attitudes towards CALL with regard to their educational level (BA, MA, and PhD). As illustrated in Table 14, results demonstrated that the there is a statistical significant difference among students' attitudes in terms of their educational level ($p = 0.028$, $p > 0.05$)

Table 14. *ANOVA results for students' attitudes in terms of their educational level*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1528.034	2	764.017	3.629	.028
Within Groups	64006.598	304	210.548		
Total	65534.632	306			

To delve into this matter further, the researchers decided to perform the Tukey test as the *post-hoc* analysis. The Tukey test, as illustrated in Table 15, did not report any significant differences among the attitudes of different educational level towards CALL.

Table 15. *Post-hoc Tukey test for students' attitudes towards CALL on educational level variable*

(I) Academic	(J) Academic	Mean			95% Confidence Interval	
Degree	Degree	Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
BA	MA	-3.99294	1.78548	.067	-8.1982	.2123

	PhD	-5.48814	2.56855	.084	-11.5377	.5614
MA	BA	3.99294	1.78548	.067	-.2123	8.1982
	PhD	-1.49520	2.61937	.836	-7.6645	4.6741
PhD	BA	5.48814	2.56855	.084	-.5614	11.5377
	MA	1.49520	2.61937	.836	-4.6741	7.6645

Although, Tafazoli, Gómez and Huertas's (2018) Scheffe *post-hoc* analysis of their study on the attitudes of students towards CALL in terms of their educational level approved a difference in other constructs like computer literacy, the findings of their study approved the above-mentioned finding of the fifth research question of this study.

RQ6: Is there any significant difference among the Spanish and Iranian language teachers' attitudes towards the use of CALL in terms of their educational level?

A one-way analysis of variance (ANOVA) was executed to investigate if there are any statistical significant differences between the teachers' attitudes in terms of their educational level. As demonstrated in Table 16, results revealed that there is no statistical significant differences ($p = 0.286$, $p > 0.05$) between the teachers' attitudes with regard to their educational level.

Table 16. *ANOVA results for teachers' attitudes in terms of their educational level*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	402.466	2	201.233	1.256	.286
Within Groups	50455.248	315	160.175		
Total	50857.714	317			

On the one hand, the finding of this question is in line with Al-Emran, Elsherif and Shaalan (2016) who studied the faculty members' attitudes towards M-learning in terms of academic rank. On the other hand, an ANOVA test on Saudi Arabian faculty members' attitudes towards M-learning showed that young teaching assistant with lower rank were more positive than academic staff of higher ranks (Alwraikat & Al Tokhaim, 2014).

6. Conclusion

The evolution of educational technology in general, and Computer-Assisted Language Learning (CALL) in particular, has had a vital impact on language teaching and learning. This paper tried to accentuate the state-of-the-art in educational technology regarding teachers and students' attitudes towards CALL. The main aim of this study was to investigate Iranian and Spanish teachers' and students' attitudes, which in turn may support the decision makers of these two countries language educational organizations in designing, integrating and utilizing the required CALL infrastructure, materials and tools. In this study, different variables such as gender, age and educational level, have been taken into account while investigating those attitudes.

According to the findings of this study, all the calculated factors (gender, age and education level) had no relationship to the attitudes of language teachers and students towards CALL. These findings may indicate that most language teachers and students understand the critical role of CALL in their professional and daily lives. Designing, developing and applying CALL materials and tools in language educational settings is inevitable, and the new trend of language teaching and learning through technology among teachers and students (which this study has documented) is to use these materials and tools extensively.

Within the field of CALL, there are many areas of research, but this study has emphasized the role of demographic features on how language teachers and students appreciate the use of CALL in educational contexts. We would like to suggest some action research-based studies that we believe our results may not be appropriate to all CALL related contexts. The success of CALL in other contexts, from Eastern to Western countries, may lead to different results. Hence, we recommend further research into investigating

what specifically second and foreign language teachers and students need to integrating CALL in their language environments.

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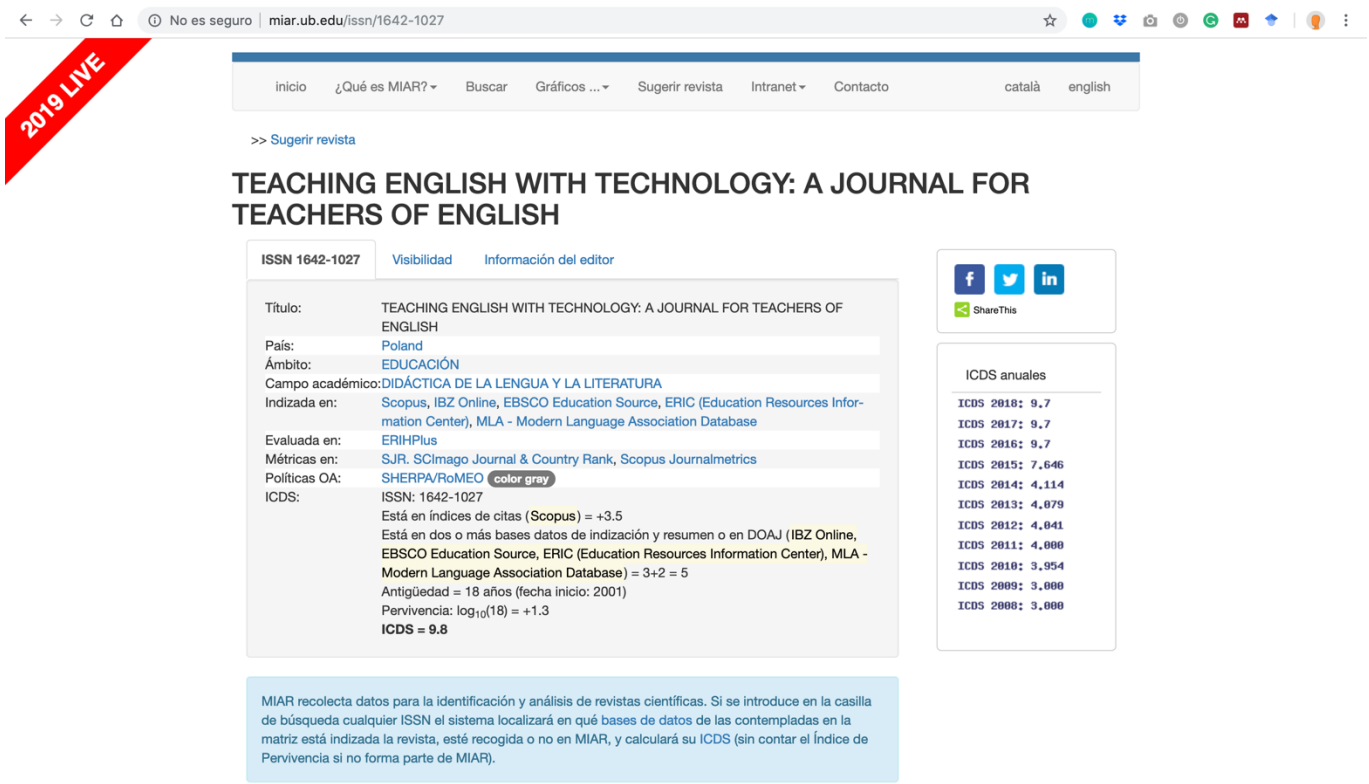
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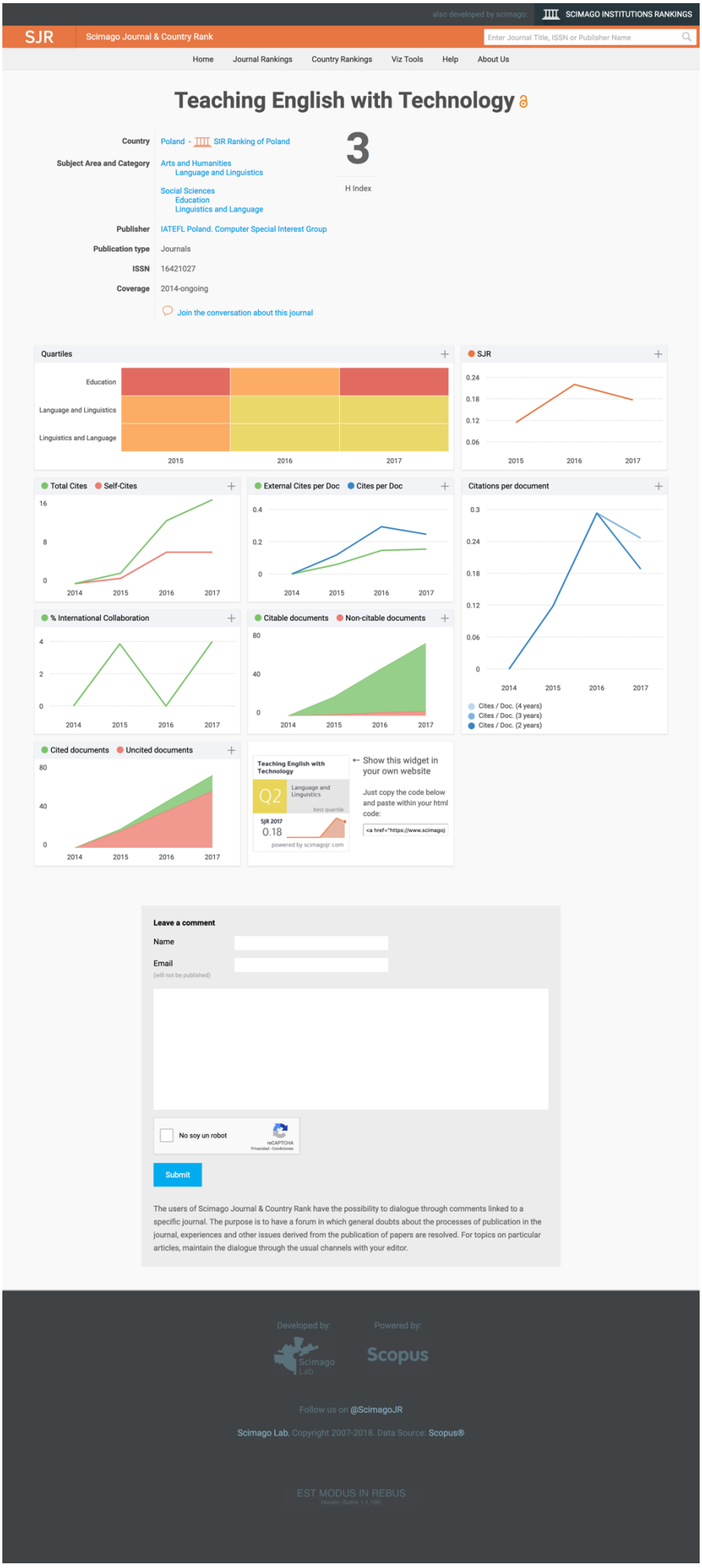
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7. Study 6: A Qualitative SWOT Analysis of Language Teachers' Attitudes and Perceptions towards Computer-Assisted Language Learning: A Cross-Cultural Study in Iran and Spain

A Qualitative SWOT Analysis of Language Teachers' Attitudes and Perceptions towards Computer-Assisted Language Learning:

A Cross-Cultural Study in Iran and Spain

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Abstract

The purpose of this present cross-cultural study is to explore the strengths, opportunities, weaknesses, and threats of Computer-Assisted Language Learning (CALL) based on language teachers' attitudes and perceptions in Iran and Spain, as well as the existent differences between these two contexts. Moreover, the study aims to categorize the attitudes and perceptions of the sample (= 277) regarding CALL teacher education, educational contexts, and individual teacher factors. The study is based on a sample of 277 language teachers, out of whom 141 were Iranian and 136 were Spanish. This qualitative study includes open-ended questions in order to find out about the attitudes and perceptions of language teachers towards CALL. To make a sound decision, the researchers agreed to utilize the Delphi methodology, which was originally established in order to diagnose the benefit of technologies. Collected data were analyzed through a SWOT matrix. Then, statistical analysis (which included content analysis of qualitative data) was applied to classify data and align them into the SWOT matrix. At the final stage, pedagogical implications and recommendations for further research are presented.

Keywords**:** Computer-Assisted Language Learning (CALL), Cross-cultural study, Qualitative study, SWOT analysis, Attitudes, Perceptions

1. Introduction

Scholars in language teaching and learning acknowledge that many elements should be combined for a successful utilization of technology for language education (Hubbard & Levy, 2006; Kassen, Lavine, Murphy-Judy & Peters, 2007; Kessler, 2010; Son, Robb & Charismiadji, 2011). Some elements might be more critical than others, but if any of them fails the utilization will be impaired. Much of previous research on the merits and barriers of Computer-Assisted Language Learning (CALL) highlighted the 'availability of CALL resources' as a common justification for sparse utilization of CALL (Tafazoli, 2015). However, CALL software, tools, and programs are widely available for language teachers and learners around the world – although the amount might be diverse in different countries. Regardless of several positive facets of CALL, it still attempts to act a functional role in language education.

The literature shows that CALL utilization has been explored from different perspectives. A number of research have studied teachers' competencies in the implementation of CALL, and found out the reasons

why some CALL tools and programs are more frequent than others (Golshan & Tafazoli, 2014; Hubbard & Levy, 2006; Mumtaz, 2000; Son et al., 2011). Moreover, a number of studies have investigated the way teachers implement CALL tools in their classrooms (Eubanks, Yeh & Tseng, 2018; Henry, Carroll, Cunliffe & Kop, 2018; Jin, 2018; Schulze & Scholz, 2018; Yang, 2018). Although, many scholars address teachers' attitudes towards CALL (e.g. Lam, 2000), a thorough scrutiny of the literature shows that most of prior studies on attitudes towards CALL is explored within a particular culture and context. In spite of the profound information in CALL gained over the review of literature, no study, to our best knowledge, has qualitatively explored the attitudes and perceptions of language teachers in large-scale in two different cultural settings. A cross-cultural study is an effective way to explore the psychological traits (Matsumoto & Yoo, 2006) which can provide educational improvement (Stigler & Hiebert, 1999).

To meet the end of the study, the researchers attempted to find the answer for the following research questions:

Q1: What are the strengths, weaknesses, opportunities, and threats of CALL in language education based on Iranian and Spanish teachers' perceptions and attitudes?

Q2: What are the differences between Iranian and Spanish language teachers' perceptions and attitudes towards CALL?

Q3: What factors are involved in the perceptions and attitudes of Iranian and Spanish language teachers towards CALL regarding teacher education?

Q4: What factors are involved in the perceptions and attitudes of Iranian and Spanish language teachers towards CALL regarding educational contexts?

Q5: What factors are involved in the perceptions and attitudes of Iranian and Spanish language teachers towards CALL regarding individual teachers?

We begin our discussion with a review of various merits and barriers teachers reported regarding the implementation of CALL in different countries, and then demonstrate Hong's (2010) theoretical framework, then we move to our methodology, procedures to qualitative data collection, and SWOT matrix analysis. Following the methodology, in results and discussion section, we present our findings. Finally, in conclusion, the implications of the study, limitations and suggestions for further research is discussed. It should be noted that, in this study, Computer-Assisted Language Learning (CALL) is understood as any application of technology for language teaching and learning (Tafazoli, Gómez & Huertas, 2018).

2. Review of Literature

In France, Toffoli and Sockett (2015) investigated the perception of 30 teachers concerning Online Informal Learning of English (OILE). The instrument of their mixed methods study was a questionnaire which helped them to collect data regarding teacher beliefs, insights into practices, pedagogical choices, and its relevance to learning. Based on their findings, most teachers (about 70%) believe that OILE affects students' in-class behaviour and English language skills positively. The teachers counted different

advantages: (1) increasing students' motivation, confident, and curiosity about English, (2) enhancing students' "general feeling of being at ease with the spoken language" (Toffoli & Sockett, 2015, p. 13), (3) becoming English a part of students' daily lives, (4) familiarizing students with English/American cultural habits, (5) boosting students' knowledge about English-speaking countries, (6) improving students' proper use of idiomatic expression, pronunciation, comprehension, and fluency, and (7) increasing the extra-curricular contacts of students with English.

In Turkey, a qualitative study has been conducted in order to explore the perceptions of prospective English language teachers on flipped classrooms. Basal (2015) used open-ended questions to collect data from 35 prospective EFL teachers. The results showed the positive perceptions of language teachers towards flipped classrooms. Moreover, the content analysis of the responses confirmed that flipped classrooms is advantageous in terms of four categories, namely: (1) learning at one's own pace, (2) advance student preparation, (3) overcoming the limitations of class time, and (4) increasing the participation in the classroom. The findings of the study had been previously confirmed by different scholars around the world (e.g. Parsons & Beauchamp, 2012). Finally, the researcher concluded that (1) free classroom time, (2) opportunities for personalized learning, (3) opportunities for more student-centered learning, (4) a continuous connection between student and teacher, (5) increased motivation of students, (6) a learning environment full of familiar tools, and (7) variety in lecture content attuned to different learning styles are the main benefits of flipped classrooms (Basal, 2015, p. 34).

In the U.S., Sadaf, Newby and Ertmer (2015) conducted a mixed-methods, sequential explanatory design study to explore determinants that anticipate the intentions of pre-service teachers, and to find out actual uses of Web 2.0 tools in classrooms. They reported perceived usefulness, self-efficacy, and students' expectations were the most significant and vital factors for predicting pre-service teachers' intentions and actual use of Web 2.0 tools in the classroom. Moreover, the findings showed that some of the teachers were not able to utilize Web 2.0 tools because of "limited access to technology resources and unsupportive mentor teachers" (Sadaf, Newby & Ertmer, 2015, p. 37).

In Morocco, Laabidi and Laabidi (2016) categorized the barriers of implementing ICT by English language teachers in universities. A questionnaire was used as a research instrument for data collection from 46 EFL teachers. The researchers classified the barriers into two main categories based on teachers' views: teacher-level and school-level barriers. Both teacher-level and school-level barriers act as hindrances for teachers to integrate technologies in English classes. The teacher-level obstacles are: (1) lack of time during the lesson (32.7%), (2) lack of competence (19.6%), (3) fear of computer equipment breaking down in the lesson (17.4%), (4) the belief that traditional way is better (17.4%), (5) lack of confidence (13%), and (6) other colleagues' negative views about technology (4.3%). The school-level barriers are counted as: (1) limited access to Internet (82.6%), (2) lack of computers (80.5%), (3) very large classes (69.6%), (4) insufficient space (36.9%), (5) insufficient technical support (67.4%), (6) a little access to ICT (36.9%), and (7) lack of training (28.3%). These obstacles stop EFL teachers from integrating ICT in their classes and discourage them from implementing technology in their lessons.

Another study in Morocco (Chouit, Nfissi & Laabidi, 2017) explored the relationship between teachers' use of ICT for pedagogical purposes and the institutional support. Data were collected from 163 English language teachers (male = 69.94%; female = 30.06%) through a survey questionnaire and interview questions. In general, the correlation analysis revealed that there is a significant positive correlation between the variables. In addition, the findings showed that "as the levels of institutional support increase, the use of ICT in teaching augments as well" (Chouit, Nfissi & Laabidi, 2017, p. 60). The Moroccan teachers reported that the universities (1) do not provide faculty members with any technical assistance and computer training programs, (2) do not reward teachers who are teaching through ICT, and (3) propose little support for interested teachers in integrating ICT in their classes. Based on the teachers' opinions, the researchers also claimed that the Moroccan Ministry of Higher Education could not able to provide sufficient financial support and necessary infrastructures and materials to the projects aiming at enhancing computer technology integration due to different economic, social, and educational challenges of developing countries like Morocco.

In Saudi Arabia, Tayan's (2017) mixed methods study explored the perceptions of three English for Specific Purposes (ESP) teachers towards Mobile-Assisted Language Learning (MALL) through one-to-one interviews. The results revealed positive attitudes and a receptiveness towards mobile learning integration. Moreover, the findings revealed several merits of MALL, including: (1) efficiency and efficacy of MALL, (2) improving levels of communication, (3) increasing motivation, (4) enabling prompt feedback from teachers, (5) leading to positive interactions facilitating learner autonomy, and (6) granting for greater collaboration within a richer environment. These findings confirmed a previous study by Kukulska-Hulme, and Sharples (2016). However, the researcher highlighted some challenges of implementing MALL: (1) technical issues, (2) network sustainability, and (3) comprehensive training.

In Indonesia, Nova (2017) investigated 32 teachers' (22 females and 8 males) perceptions on the usages and obstacles in implementing video in EFL classes through a questionnaire. The Indonesian teachers, from positive point of view, addressed that utilizing video (1) helps them to deliver materials easier "since it can build students' background knowledge, bring real-life language context, provide visual and audio input, and serve language expressions expressed by the speakers" (p. 24), (2) has positive effects on students' attitudes, interests, motivations, and learning styles, (3) provides additional information on the target culture, and (4) creates meaningful learning environment. These findings are in line with other studies such as Bajrami and Ismaili (2016), and Shahani and Tahriri (2015). The participants pointed out serval obstacles of (1) limitation of equipment, (2) lack of technical support, (3) troubles in finding appropriate video, (4) lack of video-editing skill, and (5) lack of students' concentration on learning. The results are in support of previous studies (e.g. Gebremedhin & Fenta, 2015).

Finally, in a qualitative study in Indonesia, Habibi, Mukminin, Riyanto, Prasojo, Sulistiyo, Sofwan and Saudagar (2018) investigated student teachers' perceptions on the advantages of using Social Networking Services (SNS). WhatsApp, Telegram, e-mail, and Google Forms are the main networking types considered in this study. The participants of this study were 42 student teachers in an English teacher education

program. The results indicated that the participants enjoyed the use of SNS as a tool for communication, supervision, discussion, and report submission that led to (1) interactive environment, (2) save time, (3) increase motivation, (4) facilitate collaboration, (5) enhance relationship and communication intensity, (6) convenience of self-directed learning, (7) improvement on critical and analytical thinking, and (8) mastery on the course content. The findings confirmed previous studies (i.e. Habibi, 2015; Hadiyanto, Failasofah, Fajaryani & Habibi, 2017) that claimed the pedagogical benefits of using SNS in education.

3. Theoretical Framework: Hong's (2010) Spherical Model of L2 Teachers' Integration of CALL Technology into the Classroom

The researchers applied the three-factor framework developed by Hong (2010) to describe the merits and barriers of CALL in language education in three main orbital factors of CALL: 1) teacher education, 2) educational context factors, and 3) individual teacher factors.

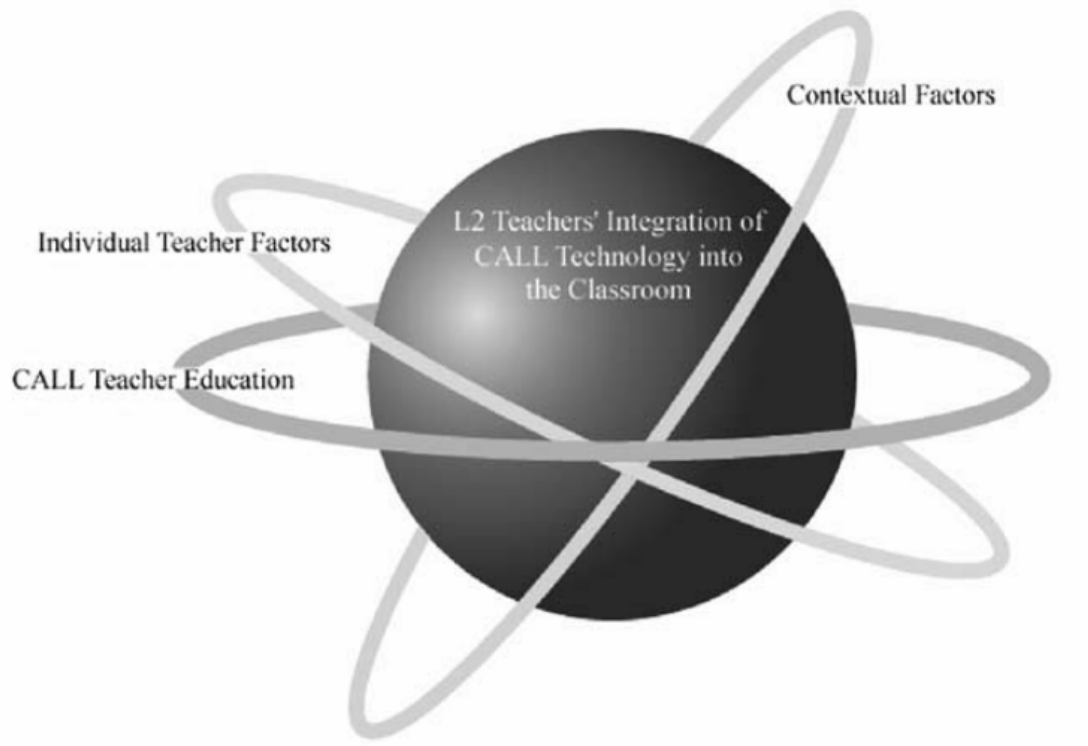

Figure 1. The spherical model of L2 teachers' integration of CALL technology into the classroom (Hong, 2010, p. 61)

Hong's (2010) spherical model of L2 teachers' integration of technology into the classroom has three orbital factors influencing it: CALL teacher education, teachers' individual factors, and contextual factors. In order to show the importance of CALL teacher education in comparison to other variables, this factor orbits around the equator of the sphere. To illustrate the mutual influences of CALL teacher education and individual teacher factors, the latter orbital factors are located slightly above the CALL teacher education. Finally, the educational context factors are positioned farther away from other orbiting factors, which shows its relative dependence from other variables. In order to bridge the gap between CALL teacher education

and the implementation in the language classrooms, Hong (2010) proposed several attempts by the researchers:

> "…continuous technology education for pre- and in-service teachers (e.g., Luke & Britten, 2007; Olesova & Meloni, 2006; Robb, 2006); formal technology education reflecting actual classroom situations (e.g., Chao, 2006; Debski, 2006; Egbert, 2006); and community of practice encouraging collaboration among teachers (e.g., Arnold, [Ducate & Lomicka], 2007; Hanson-Smith, 2006; Kolaitis, [Mahoney, Pomann & Hubbard], 2006; Meskill, [Anthony, Hilliker-VanStrander, Tseng & You], 2006)" (p. 61).

4. Methodology

4.1. Participants

This study was carried out in 2017-2018 academic year in Iran and Spain. A total of 318 language teachers enrolled in the study responded to ten open-ended questions. Participants were asked to respond these open-ended questions on a voluntary basis, and they had to write their answers online through a document uploaded onto Google Forms. Finally, out of 318 participants, 277 responded to the open-ended questions in the study. Within the respondent participants, 50.9% of the teachers were Iranian and 49.1% were Spanish, as illustrated in Table 1. Moreover, female was the dominant gender in the sample with over half of the teacher participants (64.6 %). A total of 98 of the 277 participants of the sample were male.

Table 1. *Distribution of participants based on their nationality and gender*

Country	Gender	Teacher
Iran	Male	58
	Female	83
	Total	141
Spain	Male	40
	Female	96
	Total	136
Total	Male	98
	Female	179
	Total	277

It could be observed in Table 2 that the distribution of teachers' qualifications (in terms of BA, MA and PhD) were not uniform in the sample. The minority group in terms of education level was BA teachers who summed up to 44 participants, while the major group was MA participants with 151.

Table 2. *Distribution of participants based on their educational level*

Country	Educational Level	Teacher
Iran	BA	24
	MA	78
	PhD	39
Spain	BA	20
	MA	73
	PhD	43
Total	BA	44
	MA	151
	PhD	82

As far as age was concerned, as depicted in Table 3, the largest category of teacher participants (152 participants) fell within the age range of 36 and above. On the other hand, the smallest groups in teacher participants were the category of 18 to 23 (2.52%) and the category of 24 to 29 year-old teachers (9.74%), respectively.

Table 3. *Distribution of participants based on their age groups*

Country	Age group	Teacher
Iran	18-23	6
	24-29	27
	30-35	52
	36 and above	56
Spain	18-23	1
	24-29	9
	30-35	30
	36 and above	96
Total	18-23	7
	24-29	36
	30-35	82
	36 and above	152

4.2 Instrumentation

In order to make an effective decision, the researchers decided to apply the Delphi methodology, which was originally developed for technological forecasting. The initial questionnaire for this research was designed and submitted to twenty experts in the field. Due to the multidisciplinary nature of CALL, the researchers decided to arrange the panel of experts based on their expertise. Therefore, the panel consisted of 20 PhDs from different fields of Applied Linguistics, Computer Sciences, English Language Teaching, and Computer-Assisted Language Learning, from different parts of the world such as Iran, Spain, the USA and the UK, among other countries.

The data collection and analysis phase of the Delphi was guided by three issues: the discovery of opinions; the process of determining the most important issues; and managing opinions (Keeney, Hasson & McKenna, 2000). First, the researchers tried to discover the opinions to reach consensus on the content of the questionnaire. Second, after gathering experts' opinions, data were analyzed through a content analysis technique. Finally, at the end of three rounds, the researchers agreed on the final version of the questionnaire.

After reaching consensus on the content of the questionnaire to collect data from Spanish and Iranian teachers, 14 demographic information questions and 10 open-ended questions were included in the final version of this tool. The survey as a questionnaire is one of the most usual methods of data collection on perceptions and opinions in a large-scale research (Mackey & Gass, 2005). Researchers use questionnaires to collect data from language teachers to know about their beliefs, motivations and/or reactions about their language instructions, settings, activities, etc. Phellas, Bloch and Seale (2011) mentioned some advantages of web-based (online) surveys:

> "(1) Web page surveys are extremely fast. (2) No cost is involved once the set-up has been completed. (3) You can show pictures, video and play sound. (4) Web page questionnaires can be set with skip instructions. (5) Web page questionnaires can use colours, fonts and other formatting options not possible in most email surveys. (6) A significant number of people will give more honest answers to questions. (7) People give longer answers to open-ended questions. (8) Survey answers can be combined with pre-existing information you have about individuals taking a survey". (p. 190)

The online questionnaire provides automatic data coding, data input, data editing and data assessment, and the participants usually have access to the questionnaires via the provided online links.

4.3 Research Design

This qualitative study included open-ended questions in order to find out about the perceptions of language teachers in Iran and Spain towards CALL. A SWOT analysis (which stands for Strength, Weakness, Opportunity, and Threat) of the collected data was conducted manually. The statistical analysis included content analysis of qualitative data to classify and aligning them into the SWOT matrix. Content analysis was applied in the current study, "a research technique for making replicable and valid inferences from data to their context" (Krippendorf, 1980, p. 21) and which "uses a set of procedures to make valid inferences from text" (Weber, 1990, p. 9).

4.4 Data Analysis

The SWOT analysis is an attempt to acknowledge the strengths, weaknesses, opportunities, and threats of a phenomenon to analyze the intervening factors for improvement and predict the possible barriers. The SWOT analysis is extensively used for "strategic planning of long-term and short-term development" (Thamrin & Pamungkas, 2017, p. 144). Several steps of SWOT analysis were applied in this study including: (a) collecting information, (b) categorizing data into strengths, weaknesses, opportunities or threats, (c) determining the weight of each factor, (d) specifying rates, and (e) presenting the result.

In this study, the researchers built a questionnaire-based system in order to automate SWOT analysis process (see Figure. 2). The SWOT matrix was built upon the questionnaire responses of language teachers in two countries (Iran and Spain). Answering to each open-ended question on the questionnaire was

qualitative in nature. Qualitative text answers need text processing in the form of content analysis to help determine whether the response has either a positive or negative mood.

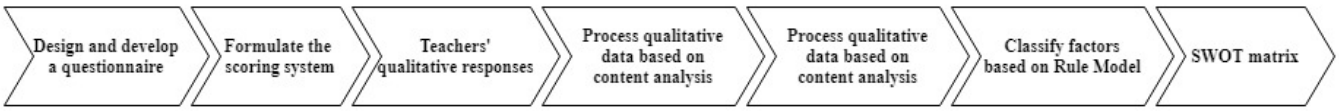

Figure. 2. Data analysis process

The qualitative responses required to be processed by using content analysis before they were categorized into the SWOT matrix. The qualitative responses of this study were in the form of text descriptions. The researchers applied content analysis to categorize text data into either positive or negative responses. We calculated the total of weight scores and categorized the content for each data. Then, the researchers classified the factors into relevant SWOT categories: strengths, weaknesses, opportunities, and threats. The categorizing process was based on the content of the qualitative data. The researchers adopted the Rule Model (Thamrin & Pamungkas, 2017) to categorize the factors based on teachers' responses (see Table 4).

Table 4. *Rule Model (Adopted from Thamrin & Pamungkas, 2017)*

		Score	
		Positive	**Negative**
Factor	**Internal**	Strength	Weakness
	External	Opportunity	Threat

The Rule Model discriminates the responses according to external and internal factors. After that, the researchers categorized the responses based on their either positive or negative scores. Then, the scores for qualitative data were directly categorized based on content. After this categorization, data were classified to SWOT matrix.

5. Results and Discussion

Before going through the results of the study, the researchers want to point out that the SWOT matrix of this study was designed based on participating teachers' point of view, which might be quite different from other groups (e.g. students, administrators, etc.). Hence, internal factors are those dealing with teachers, whereas external factors deal with students and technology itself.

First Research Question: *What are the strengths, weaknesses, opportunities, and threats of CALL in language education based on Iranian and Spanish teachers' perceptions and attitudes?*

Table 5. *SWOT Matrix for language teachers in Iran and Spain, arranged based on frequency*

Strengths	Weaknesses
• Teaching via CALL is convenient and user-friendly (ES/IR) • Teaching with CALL is fun (ES/IR) • CALL provides rich and authentic environment, materials and communication (ES/IR)	• Teacher's lack of CALL/computer/digital literacy (ES/IR) • Teacher's lower control on students via CALL (ES/IR) • Implementing CALL is overwhelming (ES/IR)

• It saves time (ES/IR) • CALL increases teachers' creativity (ES/IR) • CALL keeps teachers up-to-date (IR) • There is more control in the classroom via CALL (ES/IR) • CALL is helpful (ES/IR) • Personalized/individualized teaching and learning via CALL (ES/IR) • It is ubiquitous: it can be used anywhere and anytime (ES/IR) • CALL enhances peer collaboration and interaction (ES) • CALL increases the quality of teaching (IR) • It fosters the ability to cover all language skills (ES) • CALL complements teaching (ES)	• Implementing CALL needs too much work (ES) • Teacher's lack of confidence in using CALL (ES) • CALL makes teachers nervous (IR)
Opportunities	Threats
• There can be found a wide variety and versatility of materials in CALL (ES/IR) • CALL increases interest and motivation of the students (ES/IR) • It is interactive (ES/IR) • It is flexible (ES/IR) • CALL increases students' engagement (ES/IR) • Independent learning is fostered via CALL (ES/IR) • CALL is efficient (ES/IR) • It is more attractive (ES/IR) • CALL gives learners instant and individualized feedback (ES/IR) • CALL provides endless opportunities (ES/IR) • CALL is dynamic (ES/IR) • CALL keeps students' attention, focus and awareness (ES/IR) • CALL increases learners' autonomy (ES/IR) • Teachers reach different learning styles through CALL (ES/IR) • CALL decreases students' stress (IR) • CALL stimulates the students' curiosity (ES) • CALL increases the willingness to learn (ES) • CALL makes students active (ES) • CALL breaks down students' inhibitions (IR) • CALL brings innovation and novelty (ES/IR) • CALL makes learning adaptable (ES) • CALL provides more input and different types of input (ES) • It is multimodal (IR) • CALL improves student's critical thinking (IR)	• Technology failure/ malfunction/ crash/ break-down/ glitches (ES/IR) • Technical issues (ES/IR) • Unavailability/lack of standardized CALL materials (ES/IR) • CALL is time consuming (ES/IR) • Students' confusion and distraction via CALL (ES/IR) • Lack of/old equipment/infrastructure (ES/IR) • Unreliable (ES/IR) • CALL decreases face-to-face and oral communication (IR) • Lack of students' CALL/digital/computer literacy (IR) • CALL may replace teachers (ES) • Expensive equipment and facilities (ES/IR) • Complicated (ES/IR) • Technologies require a lot of maintenance (ES/IR) • Bad content on some websites (ES/IR) • CALL cannot stand alone (ES) • The feedback provided is not always precise via CALL (ES) • Students' over-dependency to CALL (IR)

IR: Iranian language teachers
ES: Spanish language teachers

As illustrated in Table 5, the participating language teachers in Iran and Spain claimed that one of the most significant features of CALL is to provide rich and authentic environment, materials and communication. Authentic environment is an expedient criterion for effective learning (Hwang, Ma, Shadiev, Shih & Chen, 2016). It must be mentioned that the researchers specified a code in brackets to each teacher in the sample

(see ‘Appendix A’ for further details on teachers’ profile). Regarding real communication, one of the teachers stated that:

> [T2131]: “Students get more exposures of the target language, and they can take models [regarding] how to use language in real communication from the internet. Using technology makes no boundaries between teacher and students. They can have personal consultation any time they need. [The] Teacher can control students’ participation in course group”.

Authenticity of environment and materials accentuates meaningful learning in settings that involve real-world challenges (Shadiev & Huang, 2016). Shadiev, Hwang and Huang (2017) considered various properties for authentic environments:

> First, it provides authentic contexts that reflect the way the knowledge will be used in real life. Second, it provides authentic activities that have real-world relevance, ideally ones which present complex tasks to be completed over a sustained period of time. Third, it creates an opportunity for sharing learning experiences and accessing the experiences of learners regardless of their level of expertise. Finally, it promotes reflection and enables authentic learning assessment within the tasks (p. 2).

Another positive facet of CALL is that technology increases teachers’ and students’ creativity and innovation. According to Eggen and Kauchak (2007) creativity is a skill to make, refine or use a new way to solve problem that this ability needs prior knowledge (Simonton & Ting, 2010). Hwang, Lai and Wang (2015) stated that “students’ creativity and imagination ability can be improved by engaging in a creative project, such as developing a website or an innovative artwork, by searching for relevant information on the Internet, making observations in the field, and participating in brainstorming in class or on their mobile devices” (Hwang, Lai & Wang, 2015, p. 460).

Moreover, language teachers stated that by using CALL in their classes they have more control on students’ learning process. In addition, teachers highlighted ‘anywhere and anytime’ features of the CALL and m-learning which lead to variation in teachers and students’ behavior (Geddes, 2004). Also, Wang and Shih (2015) affirmed “mobile-mediated learning could offer opportunities for learning to occur anytime and anywhere, and create an efficient, flexible and motivating condition for autonomous learning” (p. 374).

> [T222]: “With the right material, the lesson doesn't stop when the bell rings. The learning process can continue by providing the right websites/videos/exercises and subsequently by offering a low threshold to increase the willingness to learn”.

Teachers also expressed that CALL gives opportunities for personalized teaching and learning. It is called ‘personalized’ because each language student learns at their own pace (Basal, 2015; Millard, 2012). In other words, as Parsons and Beauchamp (2012) stated, learners allowed to “progress through the material at

different speeds according to their learning needs. Some students take longer to finish a topic, might skip topics that cover information they already know, or might repeat topics if they need more help" (p. 220).
Furthermore, teachers added that by utilizing technology in their classes, they could cover the four language skills: reading, listening, speaking and writing. In addition, technology-based tools and programs could act as complements to their teaching.
Increasing the interest and motivation of students via CALL is another positive factor which is extracted which is stated by other scholars such as González-Gómez, Guardiola, Rodríguez and Alonso (2012), Kuo, Walker, Schroder & Belland (2014), and Yilmaz (2017). Keller (1983, as cited in Yilmaz, 2017, p. 253) defined motivation as "a concept which affect the direction and magnitude of a behavior and which affects the efforts occurring as a result of the behavior". Motivation could be assumed as the most significant component of instructional design (Keller, 1979) which has a substantial effect on students' attitudes (Golshan & Tafazoli, 2014; Tafazoli, Gómez & Huertas, 2018), and learning behaviors in educational environments (Fairchild, Jeanne-Horst, Finney & Barron, 2005).
Variety and versatility of materials, contents, and tools provided by CALL in teaching process are reported by many teachers as well. Evseeva and Solozhenko (2015) confirmed that technologies such as Learning Management System (LMS) (in general) and Moodle (in particular) are providing "a variety of tools for studying and communication" for teachers and learners (p. 208). Moreover, a variety of facilities and capabilities of social networking sites may be applied to enhance students' linguistic skills (Akbari, Pilot & Simons, 2015; Brick, 2011). Godwin-Jones (2011) also asserts that mobile applications such as ChinesePod, Conjugation Nation, among others offer a variety of opportunities for language learners to work with and improve their language skills. Warschauer and Healey (1998) also suggested that teachers, as facilitators:

> must be aware of a variety of material available for improving students' language skill, not just one or two texts. They also need to know how to teach learners to use the material effectively. Teachers as facilitators have to be able to respond to the needs that students have, not just what has been set up ahead of time based on a curriculum developer's idea of who will be in the classroom. Teacher training is a key element to success in this more flexible language classroom, so that teachers can use multimedia and other resources effectively (p. 58).

Assisting learners to engage in learning is a critical challenge for language teachers in instructional environments. Learner engagement through active participation is a substantial element for learning that has many profits to students (Berman, 2014; Lippmann, 2013). As reported by teachers, CALL could increase student engagement in both inside- and outside-of-the-classroom language activities, which is confirmed by research regarding the role of innovative instructional practices effects on student engagement in technology-mediated learning contexts (e.g., Chen, Lambert & Guidry, 2010; Denker, 2013; Diemer, Fernandez & Streepey, 2012; Jones, Crandall, Vogler & Robinson, 2013; Junco, Heiberger & Loken, 2011; Liang & Sedig, 2010; Mango, 2015). The report of the teachers was in line with Henrie, Halverson &

Graham's (2015) definition of learner engagement. They considered 'learner engagement' as an umbrella term which includes learning both inside and outside the academic settings, whereas student engagement would concentrate only on formal academic contexts. The researchers proved that since technology as an educational tool provides an undeniable source of interactive tools and applications and facilitates peer and student-teacher interactions (Arkorful & Abaidoo, 2015), it may promote engagement (Junco, 2012; Rashid & Asghar, 2016; White & Robertson, 2015; Williams, Karousou & Mackness, 2011).

> [T177]: "Some students find [CALL] an engaging way to learn and in certain contexts it can encourage greater learner independence - though this often needs to be demonstrated".

> [T221]: "Often, if I expect students to interact in class, I find it best to use as little technology as possible. They get distracted by the technology and forget to interact".

Language teachers noted that CALL could foster independent learning, as reported by Sung, Chang and Liu (2016). The aim of education, from a constructivist perspective, is to nurture independent and self-directed learners. Chen, Kao & Sheu (2005) declared that "independent learning can assist students in acquiring the knowledge, abilities, skills, values, and motivation that will enable them to analyze learning situations and develop appropriate strategies for action" (pp. 2-3). In other words, by applying technology, we will cultivate more independent learners who could acquire knowledge and information more independently and easily, and can broaden their own learning capabilities.

A fundamental component of the assessment for learning approach is the feedback provided to students (Stobart, 2008), which is also considered as one of the most powerful means to improve student learning (Hattie & Gan, 2011). The teachers in the study notified that CALL gives learners instant and individualized feedback. Computer-based assessments have the capability of providing timely feedback. According to Hattie and Timperley (2007), provided feedback in computer-based assessments can serve to instantly bridge the gap between students' current level in the learning process and the expected learning outcomes. This means that computer-based assessments could help teachers in providing instant and individualized feedback, which is in line with both participants' claim and previous research in the field (e.g. Li, Link & Hegelheimer, 2015; Mokhtarnia & Tafazoli, 2013; Muis, Ranellucci, Trevors & Duffy, 2015; Tafazoli, Nosratzadeh & Hosseini, 2014).

Based on the information-processing model of Second Language Acquisition (SLA), learners need to pay attention to input in order to receive it as intake that finally may be "integrated in the learners' interlanguage system" (de la Fuente, 2014, p. 261). Hence, providing learners with attention-focusing environment and/or tasks may play a vital role in assisting the progress of language learning. According to our participants' statements, CALL keeps students' attention, focus and noticing. By referring to Schmidt's (1990, 1995) noticing hypothesis, "attention controls access to awareness and it is responsible for conscious noticing, which is the necessary condition for the conversion of input to intake" (Schmidt 1993, p. 209). Benefiting

from attention and noticing of language learners were at the core of many studies regarding the implementation of CALL in language education (de la Fuente, 2014; Kukulska-Hulme & Bull, 2009; Oberg & Daniels, 2012; Verdugo & Belmonte, 2007), which supports language teachers' claim in this study.

> [T285]: The fact that [CALL] generally grabs the attention of more learners, even the distracted ones, introduces variety and brings motivation to the classroom. Students find it comfortable to use technology.

There is no doubt that increasing students' autonomy is one of the major role of educational systems in different countries. Lai, Yeung and Hu (2016) even go further and stated that a fundamental educational aim is to support learners to become autonomous learners who actively apply technologies to build their own personalized learning spaces, which surely supports the claim of language teachers who argued that CALL increases learners' autonomy. Despite the various definitions of learner autonomy, it is widely agreed that autonomy refers to "the degree of choice that students have when they perform academic tasks, as well as the degree of choice they have regarding when and how to perform them" (Pintrich & Schunk, 1996 as cited in Akbari et al., 2015, p. 127). Regarding the use of technology for learning, autonomy consists of two major dimensions: (1) the ability dimension which includes self-regulation skills and the skills of locating, selecting and effectively using technology for language learning (Lai, 2013); (2) the willingness dimension which entails "a flexible mindset to deal with the uncertainties and complexity of interacting with technology" (Kop & Fournier, 2011 as cited in Lai et al., 2016, p. 2), a proactive approach to following chances to learn and applying the language (Kormos & Csizer, 2014), "the perceived usefulness of technology for language learning and the perceived educational compatibility of technology with language learning needs and preferences" (Lai, 2013 as cited in Lai et al., 2016, p. 2). The weight of learners' autonomy out of the classroom is on the shoulder of technological tools and resources (Lai, 2014; Lai, Zhu & Gong, 2014; Reinders & White, 2011). However, it would be the teachers' responsibility to assist their students to promote the required attitudes and competencies to get involved in the autonomous use of technology out of the classroom (Reinders & Darasawang, 2012; Toffoli & Sockett, 2015).

Finally, language teachers in Iran and Spain also stated that by implementing CALL in their classrooms they are able to (1) reach students' different learning styles, (2) stimulate students' curiosity, (3) increase students' willingness to learn, (4) make students active, (5) breaks down students' inhibitions, and (6) provide more input and different types of input.

In contrast, teachers counted some negative facets of CALL. Among the mentioned pitfalls of CALL, teachers' lack of CALL/computer/digital literacy should be considered as the most significant one – based on the frequency of teachers' responses and the significance of issue itself. Although many studies concentrated on the concepts of computer and digital literacies or competencies (Ilomäki, Paavola, Lakkala & Kantosalo, 2014; Liu & Kleinssaser, 2015; Røkenes & Krumsvik, 2016; Tafazoli, Gómez & Huertas, 2017) and its importance in teacher education (Arnold & Ducate, 2015), none of the previous research dealt

with the critical concept of CALL literacy (Tafazoli, 2018). Tafazoli (2018) defined CALL literacy as "the ability to use technology at an adequate level for teaching or learning a language". Considering product end-users, CALL literacy should be another role of educational scholars and teacher educators. The more CALL literate students and teachers, the more appropriate applications there will be to use CALL.

> [T133]: "…sometimes I might not have enough literacy about particular programs and apps and that can be solved by taking part in more CALL training programs".

Participants argued the unavailability of resources and lack of standardized CALL materials, which is also mentioned by Sadaf, Newby and Ertmer (2015). In addition, they complained about the bad content of some websites and unreliability of some available educational contents.

> [T161]: "Negative aspects [of CALL] may include inappropriate content of online sources since teachers cannot always control learners. Content of some sources may be ethically or politically inappropriate or biased.

Teachers also reported that implementing CALL might lead to students' confusion and distraction which supports the previous study by Montrieux, Vanderlinde, Schellens and De Marez (2015). This might be due to students' use of other unrelated tools such as games in the classroom.

> [T175]: "Students tend to be distracted by notifications, social media, etc., and have not received adequate learning training to effectively use digital technologies for learning…. Mostly related to the distracting effect of digital technologies. Mobile phones, in particular, become part of the learner's character/personality and this can be an obstacle when trying to get them to use this for non-personal, non-social media related activities like learning".

> [T1141]: "The only point that I can remember is that students can get distracted. They forget the purpose of the lesson and concentrate on playing or something else. But the learning outcome is usually positive".

Many of teachers' negative attitudes and perceptions were in line with a previous study by Laabidi and Laabidi (2016): (1) time consumption and teachers' lack of time during the lesson, (2) fear of technology breaking down/failure/malfunction/crashing or glitches, (3) teachers' lack of confidence in using CALL, and (4) technical issues.

> [T2136]: "[T]echnical problems [are the most negative aspect of CALL] (computer starts updates when e.g. I want to do a listening test; problems with internet access, other problems:

viruses, crash, not enough memory etc.; compatibility of computer software with teaching/learning software).”

[T298]: “First, when you work with technology you always need a plan B in case there is a power cut. Second, if you need to go to a new classroom, the type of format and software run in a particular computer may not work in all the computers of the institution. Sometimes, you are planning a lesson at home and you want to try something new but you refrain from doing so because you first need to know whether that programme can work in school. Third, with older students you need to take into account that not all of them will go on board with the use technology. Thus, you need to spend time building students confidence in the software, and sometimes it is difficult to have time to do so”.

Furthermore, some of the participants stated that (1) by implementing CALL, teachers have lower control on students’ performance, (2) CALL cannot stand alone, and (3) the provided feedback by CALL is not always precise.

[T29]: “I cannot monitor as effectively when everything they are doing is on a screen - I, as the teacher, don’t get as much subtle feedback about how a student is doing”.

[T287]: “Feedbacks are sometimes not clear enough; they need a teacher’s sense of judgements and explanations”.

[T2100]: “One negative outcome is that it is difficult to control what all the students are doing. It is very easy for them to start checking or doing things completely different from what is planned”.

The participants of the study also complained about the old equipment and lack of appropriate infrastructure within their schools due to their expenses and maintenances (Chouit et al., 2017; Nova, 2017). It is quite interesting to find out that some teachers have their own personal worries: some of them argued that implementing CALL needs too much work; CALL is complicated and overwhelming (Arkorful & Abaidoo, 2015). In addition, some of the participating teachers have had their own concerns about future careers as they think that CALL may replace teachers, which could lead to low job offers in a near future.

[T161]: “Limitations in infrastructures and resources, tech skills and knowledge, filtering. Usually I am responsible for providing tech-based lessons. University does not provide anything. It's all up to me and students”.

[T222]: “My repository of material is growing steadily, but it does take time to make new things, also because you want the new material to be better and different”.

Second Research Question: *What are the differences between Iranian and Spanish language teachers' perceptions and attitudes towards CALL?*

Data analysis showed that participating language teachers in Iran and Spain counted some positive features for implementing CALL in language classrooms, which is in line with previous studies in the field regarding the following features: convenient (Kvavik, 2005), user-friendly (Stiler & Philleo, 2003), fun (Balakrishnan, Liew & Pourgholaminejad, 2015), flexible (Wanner & Palmer, 2015), and interactive (Takacs, Swart & Bus, 2015). In addition, language teachers in Iran found CALL attractive (Shyamlee, 2012) and efficient (Golonka, Bowles, Frank, Richardson & Freynik, 2014) as well.

[T289]: “There is a variety of resources, students feel comfortable and respond positively to the use of technology in classes. Lessons are more interesting, effective and dynamic”.

[T221]: “[technology] bring[s] variety to teaching methodologies, use similar apps/social media used by students for other purposes (e.g. snapchat, twitter), bring[s] a fun element to the learning (e.g. Quizlet), help students discover new technologies (e.g. WordPress)”.

Although the above stated both positive and negative perceptions are common between teachers in Iran and Spain. Data analysis revealed that there are some distinguished advantages and disadvantages in these two educational contexts. As advantage, Iranian language teachers reflected that CALL (1) keeps teachers up-to-dated, (2) decreases students’ stress, (3) increases the quality of teaching (Shyamlee, 2012), (4) breaks down students' inhibitions, and (5) improves student’s critical thinking. Moreover, the multimodality of CALL is only reported by Iranian teachers. From negative point of view, Iranian teachers described that CALL makes teachers nervous, and decrease face-to-face and oral communication (Shyamlee, 2012). Also, the low level of students’ CALL/digital/computer literacy and students’ over-dependency to technology might act as hindrances to implement technology in the classrooms.

[T193]: “… the current generation are Web literate but not computer literate. Much like the difference between the ham radio generation and the FM radio generation”.

[T197]: “Teachers and students may tend to over-rely on computers. Teachers still need to teach, technology enhances that teaching. Lessons can go horribly wrong the other way around”.

On the other side, the Spanish participants highlighted the effect of CALL on enhancing peer collaboration and interactions. There is a significant body of research indicating the positive effects of technology on boosting peer interaction and sharing knowledge among participants (e.g. Augar, Raitman & Zhou, 2006; Boulos, Maramba & Wheeler, 2006; Ioannou, Brown & Artino, 2015; Li & Kim, 2016). With the arrival of Communicative Language Teaching (CLT), collaborative learning found its substantial role in language learning and teaching (Abadikhah & Mosleh, 2011; Ismail & Samad, 2010). Regarding sociocultural theory, Vygotsky (1978) assumed speech as a vital part of human cognitive development, at the same time that language and cognitive skills evolve through interaction with people and the world. Neumann and McDonough (2015) affirmed, "interaction plays an essential role in knowledge-building by creating opportunities for learners to elicit help from experts or simply articulate steps in the problem-solving process through internal or external speech" (p. 84). What is more, language teachers in Spain stated that CALL (1) assists teachers to cover all the language skills, (2) complements teaching, (3) stimulate students' curiosity, (4) increases the willingness to learn, (5) makes students active, and (6) provides more input and different types of input for students. Additionally, they counted adaptability as one of the main features of CALL.

Third Research Question: *What factors are involved in the perceptions and attitudes of Iranian and Spanish language teachers towards CALL regarding teacher education?*

The participants of the study counted many beneficial factors which are in line with CALL teacher education: (1) CALL keeps teacher up-to-date, (2) teachers have more control in the classroom via CALL, (3) CALL improves personalized/individualized teaching, (4) CALL increases the quality of teaching, (5) CALL assists teachers in covering all the language skills, and (6) CALL complements teaching. On the negative side, many teachers disclose their lack of CALL/digital/computer literacy.

> [T225]: "The most challenging aspect is to keep up with new technologies. For instance, I would love to learn how to use White Boards as more of them are now available, but the training does not always fit into my teaching schedule".

> [T267]: "To continue growing and learning with and of technology. Every day I try to read articles or news about new apps or advances in technology".

> [T291]: "…keep up with new apps and we need to take the time to learn how to use it because there is often no pedagogical instructions and we have to figure out ourselves how to integrate those technologies in our classroom".

[T1113]: “Technologies give me a new possibility for teaching whereby I can take into account learners' individuality. Also, through online group discussions, I can improve my learners' creative and critical thinking skills”.

[T13]: “What I like least about technology use in language teaching is that it requires special training and takes quite a lot of time”.

[T2133]: “I don’t see negative outcomes *per se* as long as the teacher knows how to handle challenging situations. Technology is a resource to improve our teaching. Teachers are the ones still doing the magic”.

The previous studies in the field of CALL teacher education pointed out two main barriers for CALL implementation: the lack of formal professional development (Hubbard & Levy, 2006; Kassen et al., 2007; Kessler, 2010), and the lack of training opportunities (Hubbard, 2004; Meskill et al., 2006; Mumtaz, 2000, Penuel, 2006).

Fourth Research Question: *What factors are involved in the perceptions and attitudes of Iranian and Spanish language teachers towards CALL regarding educational context?*

Different factors are involved in the perceptions and attitudes of the participants of the study based on the educational context. From a positive point of view, the language teachers in Iran and Spain highlighted only one benefit for CALL: it can be used ‘anywhere and anytime’. However, from a negative point of view, they argued that (1) CALL standardized materials are unavailable, (2) implementing CALL needs too much work and time, (3) the lack of or old equipment/infrastructure causes problems for CALL implementation, (4) CALL equipment and facilities are expensive, and (5) technology requires a lot of maintenances.

[T285]: “… the institution and administration do not provide sufficient facilities and infrastructural support, thus making it difficult for the teacher to set up devices and operate them. Also, at times the use of technology turns counter effective when learners lose decorum in the classroom”.

[T269]: “Each educational institution has its own learning platform, a teacher needs to get access to it, platforms are not intuitive. Computers are very slow to start at our Uni[versity], incompatibility of student’s PC with projectors”.

[T1101]: “Finding the right material can be time consuming. Also, the same material might not create the same feedback among different classes. There should be a way to allocate each class

an appropriate type of material, which I do not know about yet and not knowing how to choose makes me a bit nervous.

[T1141]: "[Technologies] often break down and stop working unexpectedly. They need a lot of preparation time and they need careful planning in order to make them useful".

In this set of factors extracted from teachers' educational contexts, research shows that the most significant issues deal with limited administrative support, lack of available equipment, and lack of time (Meskill et al., 2006; Mumtaz, 2000; Penuel, 2006; Wiebe & Kabata, 2010).

Fifth Research Question: *What factors are involved in the perceptions and attitudes of Iranian and Spanish language teachers towards CALL regarding individual teachers?*

Cárdenas-Clarosa and Oyanedel (2015) believed that it is in individual teacher factors "where teachers can directly forge some positive changes because studies have consistently shown that it is teachers, not technology, who are the true agents of change" (p. 3). Teachers' individual factors concern teachers' innate teaching behaviours and practices. In this regard, previous studies have identified pedagogical abilities and practices (Compton, 2009; Hampel & Stickler, 2005; Shelley, White, Baumann & Murphy, 2006; Son et al., 2011); personal characteristics; teachers' perceptions and expectations (Kim, 2008; Mumtaz, 2000; Penuel, 2006), and teachers' roles and identity (Comas-Quinn, 2011).

According to the above-mentioned points, the Iranian and Spanish language teachers reported some positive factors: (1) teaching with CALL is convenient, (2) CALL is user-friendly, (3) teaching with CALL is fun, and (4) CALL offers variety to language teaching. Apart from these positive factors, participants believed that (1) teaching via CALL is overwhelming, (2) many teachers suffer from lack of confidence in implementing CALL, (3) CALL makes teachers nervous, (4) CALL is unreliable, and (5) technology may replace teachers.

At the end of the results and discussion section, the researchers also would like to present some notes by the participants about their overall attitudes and perceptions towards CALL, which they found critical:

[T158]: "Generally speaking I think that's the future of teaching "industry" but I am not sure whether the schools and students (even teachers) are ready for its implementation due to technical, ethical or proficiency issues".

[T248]: "I think [CALL] is positive but it is not the only way of teaching. We don't have to lose or forget other methodologies and practices just because technology is fashionable. I think it is important to combine every possible method and activity to make the experience of learning as appealing as we can".

[T276]: “Technologies offer an endless range of options and resources that contribute to ease teaching a language and the process to learning a language. The problem is that technologies are not always used properly or they may not work well which results in wasting time, distractions, etc.”

[T285]: “If used in moderation as a means of SUPPORT, and not for complete reliance, ie the teacher does still design own activities suitable for the learners’ needs, levels and preferences; it is indeed a blessing”.

[T291]: “Overall, I think [CALL] [i]s great and useful. It's a tool and we need to use that tool. We also need to be careful: It doesn't replace teaching, but it adds a plus to it. Also we need to be aware of the technology's access and uses of our leaners, we don't want some learners to have a disadvantage.

[T2123]: “Tech is a means, not an end in itself, and should be used only when it seems to further the purpose of language learning -- never as a novelty”.

[T176]: “I think we ought to universalize using technology. Every teacher should encourage coworkers to use technology. And there should be more conferences, workshops etc to generalize the idea of technology. To create a classroom that is fully equipped with technology is not too difficult”.

[T234]: “Applying technology in the classroom is a must because one of the skills that students need to develop in the 21st century is digital literacy. Therefore, we have to cater for the needs of our students and help them to move on”.

[T197]: “The world's movement in toward technology, so if a person doesn't consider this, he/she will be no longer in the market!”

[T1101]: “[CALL] has still a lot of room to develop, but I think it eventually will conquer the realm of education and we teachers need to accept that and practise using it more efficiently”.

[T1120]: “I think it is of utmost importance to incorporate technologies into language teaching because this teaching paradigm is going to be the dominant discourse in ELT in the near future”.

6. Conclusion

The purpose of this cross-cultural study was to explore the strengths, opportunities, weaknesses, and threats of Computer-Assisted Language Learning (CALL) based on language teachers' attitudes and perceptions in Iran and Spain, and the existent differences between these two contexts. Moreover, the study aimed to categorize the attitudes and perceptions of the sample regarding CALL teacher education, educational contexts, and individual teacher factors. To meet the end of the study, the researchers applied Delphi methodology, a SWOT matrix, and content analysis. This study examined the attitudes and perceptions as the first determinants of individual intention to act (Al rababah & Rababah, 2017).

The findings revealed the followings among the most relevant strengths: (1) convenience and user-friendliness of CALL, (2) fun aspect of teaching via CALL, (3) rich and authentic environment, materials and communication via CALL, and (4) saving time via CALL. Among the opportunities participants claimed: (1) variety and versatility of CALL materials, (2) CALL increases the students' interests and motivations, (3) Interactivity of CALL, (4) Flexibility of CALL, and (5) CALL increases students' engagement. The major weakness identified was teachers' lack of CALL/digital/computer literacy. And finally, among threats these were the most salient features of our analysis: (1) Technology failure/ malfunction/crash/break-down/glitches, (2) technical issues, (3) unavailability/lack of standardized CALL materials, (4) students' confusion and distraction via CALL, and (5) lack of/old equipment/infrastructure are the most frequent factors which were reported by the teachers in Iran and Spain.

This study suggests that the effective implementation of CALL in language teaching and learning is impeded by several distinctive factors. Based on the findings of the present study, a number of implications related to CALL implementation in language education can be drawn from this piece of research, which can be summed up as follows:

(1) Running more CALL teacher education programs in order to enhance teachers' CALL literacy, (2) Improving teachers' cognitive dimension in order to overcome psychological problems such as lack of confidence, being nervous, etc., (3) Providing teachers with standardized CALL materials, (4) Encouraging faculties to develop their technological equipment, facilities, and infrastructure, (5) The governments and their education departments/bodies should provide economical facilities for educational institutions to improve their educational equipment and infrastructures, (6) Institutions must provide a proper evaluation to integrate ICT into teaching, (7) Enhancing students' CALL literacy by holding extracurricular courses, and (8) Encouraging language teachers to implement CALL in their classroom by their affiliated institutes.

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Appendix A

Mentioned participating teachers' profiles in the text (arranged based on the appearance):

Code	Country	Gender	Age range	Academic degree	Teaching experience	Workplace	Experience of CALL implementation
T2131	Spain	Female	+36*	PhD	+10 years**	HEI	Yes
T222	Spain	Female	+36	BA	7-9 years	HEI	Yes
T177	Iran	Female	24-29	MA	+10 years	LS	Yes
T221	Spain	Female	+36	MA	+10 years	HEI	Yes
T285	Spain	Female	18-23	MA	1-3 years	HEI	Yes
T133	Iran	Female	30-35	PhD	4-6 years	LS	Yes
T161	Iran	Female	+36	PhD	7-9 years	HEI	Yes
T175	Iran	Male	+36	MA	+10 years	HEI	Yes
T1141	Iran	Female	24-29	BA	1-3 years	PE	No
T2136	Spain	Female	+36	MA	+10 years	HEI	Yes
T298	Spain	Female	30-35	BA	7-9 years	PE	Yes
T29	Spain	Female	30-35	MA	7-9 years	HEI	Yes
T287	Spain	Female	30-35	MA	+10 years	LS	Yes
T2100	Spain	Male	+36	MA	+10 years	SE	Yes
T193	Iran	Male	+36	MA	+10 years	HEI	Yes
T197	Iran	Male	+36	PhD	+10 years	HEI	Yes
T289	Spain	Female	30-35	BA	+10 years	PE	Yes
T225	Spain	Female	+36	MA	+10 years	HEI	Yes
T267	Spain	Female	24-29	BA	4-6 years	HEI	Yes

T291	Spain	Female	24-29	MA	4-6 years	HEI	Yes
T1113	Iran	Female	30-35	PhD	+10 years	HEI	Yes
T13	Iran	Female	24-29	MA	4-6 years	HEI	Yes
T2133	Spain	Female	+36	BA	+10 years	LS	Yes
T285	Spain	Female	18-23	MA	1-3 years	HEI	Yes
T269	Spain	Female	+36	PhD	+10 years	HEI	Yes
T1101	Iran	Male	30-35	MA	4-6 years	SE & LS	Yes
T158	Iran	Male	30-35	MA	+10 years	HEI	Yes
T248	Spain	Female	30-35	MA	7-9 years	LS	Yes
T276	Spain	Female	30-35	PhD	7-9 years	HEI	Yes
T291	Spain	Female	24-29	MA	4-6 years	HEI	Yes
T2123	Spain	Male	+36	MA	+10 years	HEI	Yes
T176	Iran	Female	24-29	BA	1-3 years	LS	Yes
T234	Spain	Female	+36	PhD	+10 years	LS	Yes
T1120	Iran	Female	24-29	MA	1-3 years	SE	Yes

+36* = 36 and above
+10 years** = 10 years and more
LS = Language schools
PE = Primary Education
SE = Secondary Education
HEI = Higher Education Institution

INTERNATIONAL JOURNAL OF INFORMATION AND COMMUNICATION TECHNOLOGY EDUCATION

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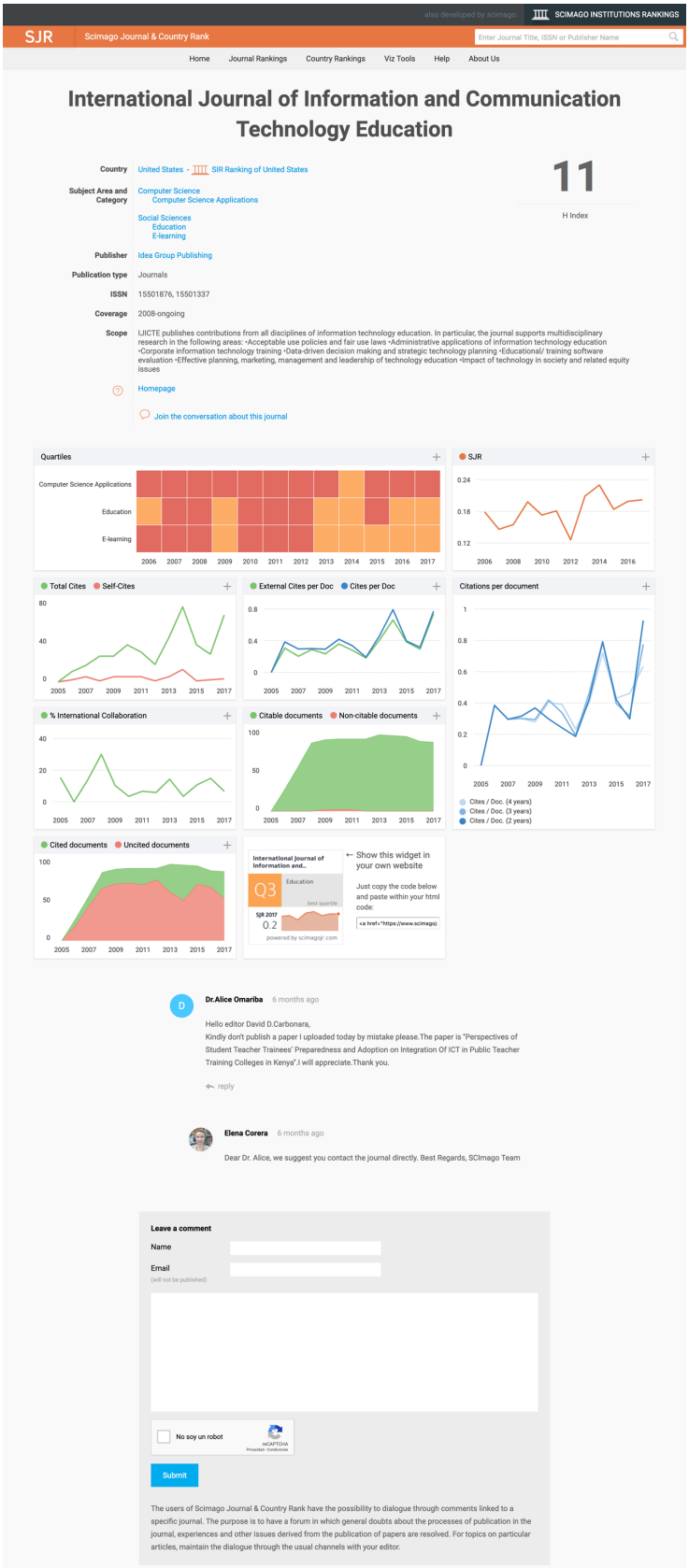
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8. Study 7: A Cross-Cultural Study on Iranian and Spanish Language Students' Attitudes and Perceptions towards Computer-Assisted Language Learning: A Qualitative SWOT Analysis

A Cross-Cultural Study on Iranian and Spanish Language Students' Attitudes and Perceptions towards Computer-Assisted Language Learning:

A Qualitative SWOT Analysis

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Abstract

The purpose of this present cross-cultural study is to explore the strengths, opportunities, weaknesses, and threats of Computer-Assisted Language Learning (CALL) based on language students' attitudes and perceptions in Iran and Spain, as well as the existent differences between these two contexts. The study is based on a sample of 237 language students, out of whom 62.9% were Iranian and 37.1% were Spanish. This qualitative study includes open-ended questions in order to find out about the attitudes and perceptions of language students towards CALL. To make a sound decision, the researchers agreed to utilize the Delphi methodology, which was originally established in order to diagnose the benefit of technologies. Collected data were analyzed through a SWOT matrix. Then, statistical analysis (which included content analysis of qualitative data) was applied to classify data and align them into the SWOT matrix. At the final stage, pedagogical implications and recommendations for further research are presented.

***Keywords*:** Computer-Assisted Language Learning (CALL), Cross-cultural study, Qualitative study, SWOT analysis, Attitudes, Perceptions

Categories: Educational technology, language and literacy, bilingualism

1. Introduction

The implementation of Computer-Assisted Language Learning (CALL) has been investigated in different forms. One of the issues in implementing CALL is students' CALL literacy. As defined by Tafazoli (2018), CALL literacy is "the ability to use technology at an adequate level for learning a language". Considering students as CALL end-users, improving students' CALL literacy should be another role of educational scholars, teachers and decision makers. The more CALL literate students, the more implementations of CALL. In addition, many previous research tackled the issue of the way in which teachers implementing CALL tools in their classrooms (Jin, 2018; Schulze & Scholz, 2018; Yang, 2018). A number of studies investigated the students' attitudes towards CALL (e.g. Hamid, Waycott, Kurnia & Chang, 2015; Heflin, Shewmaker & Nguyen, 2017; Horvat, Dobrotaa, Krsmanovic & Cudanova, 2013; Kung, 2015; Lin, Warschauer & Blake, 2016; Lintunen, Mutta & Pelttari, 2017; Ozdamli & Uzunboylu, 2015; Pinto-Llorente, Sánchez-Gómez, García-Peñalvo & Casillas-Martín, 2016; Riemer & Schrader, 2015; Wright, 2017).

Riemer and Schrader (2015) reported the positive attitudes of German students towards learning with serious games. Moreover, they claimed that games have potential to support students' learning performance. In Cyprus, the study conducted by Ozdamli and Uzunboylu (2015) showed the positive attitudes and perceptions of students towards mobile learning. Kung's (2015) study on American students found blog-assisted language learning (BALL) writing instruction positive. Although the participants regarded BALL as convenience, accessible, flexible, and autonomous, they reported its potential problems such as teachers' and students' poor technical skills, insufficient face-to-face interaction with instructor, support and time management skills. In Spain, Pinto-Llorente et al. (2016) stated that the students' attitudes and perceptions towards technological tools such as podcast, videocast, online tests, online glossary and forums were positive. They counted different reasons for Spanish participants' positive attitudes: (1) technology gives students the opportunity to boost their autonomy, self-paced and individualized learning, (2) technology provides a natural and real environment (authentic exposure) and authentic materials for grammar practice, (3) technology supports collaborative and independent learning, (4) flexibility (anytime and anywhere feature) of technology, (5) technology enhances students' motivation, and (6) technology carries out continuous self-assessment. 42% of Malaysian EFL students in Wright's (2017) study preferred online lessons rather than in-class lessons. The participants preferred online lessons based on the following reasons: (1) comfort, convenience of time and location, (2) shorter time, (3) more flexible timing, (4) don't have to hurry to class, (5) flexible location (relaxed and ability to repeat video), (6) enjoyment (interesting, fun, exciting, different, and ease to focus), (7) skills enhancement (can easily get information about the subject, independent study opportunity, and English skill improvement) (p. 67). In Finland, language students expressed their positive attitudes towards implementing technologies in learning. In this study by Lintunen, Mutta and Pelttari (2017), the participants perceive that technologies (1) have a facilitating effect on students' communication skills, (2) improve the role of teacher as a facilitator, (3) diversify teaching materials, (4) meet students personal learning styles, (5) are not too time-consuming, (6) decrease students'

stress and anxiety, (7) promote interactive cooperation, and (8) increase learners' engagement in learning process. However, about half of the participants believed that technologies might harm face-to-face interactions. Hamid et al. (2015) conducted a cross-cultural study on Malaysian and Australian students' perceptions towards using social technologies in order to improve language learning interactions. The participants of the study reported many merits of social technologies: (1) allow more engagement with the content, (2) improve peer learning, (3) enhance critical thinking, (4) promote self-directed learning, (5) allow self-monitoring of learning progress, (6) provide a platform to interact with lecturers, and (7) provide enjoyable and interactive learning environment.

Although, many researchers explored students' attitudes towards CALL, a comprehensive review of the literature revealed that most of previous research on attitudes towards CALL is conducted within a specific culture and setting. Regardless of the thoughtful information in CALL attained over the review of literature, no study, to our best knowledge, has cross-culturally and qualitatively explored the attitudes and perceptions of language students in large-scale. A cross-cultural study is an effective way to explore the psychological traits (Matsumoto & Yoo, 2006) which can provide educational improvement (Stigler & Hiebert, 1999).

Based on the aims of the study, the researchers tried to find the answer for the following research questions:

Q1: What are the strengths, weaknesses, opportunities, and threats of CALL in language education based on Iranian and Spanish students' perceptions and attitudes?

Q2: What are the differences between Iranian and Spanish language students' perceptions and attitudes towards CALL?

It should be noted that, in this study, Computer-Assisted Language Learning (CALL) is understood as any application of technology for language teaching and learning (Tafazoli, Gómez & Huertas, 2018).

2. Methodology

2.1. Participants

This study was conducted in 2017-2018 academic year in Iran and Spain. A total of 307 language students administered in the study answered to ten open-ended questions. Participants were requested to respond these open-ended questions on a voluntary basis, and they had to write their responses online via a document uploaded onto Google Forms. Finally, out of 307 participants, 237 responded to the open-ended questions in the study. Within the respondent participants, 62.9% of the students were Iranian and 37.1% were Spanish, as showed in Table 1. Moreover, female was the dominant gender in the sample with over half of the teacher participants (75.1 %). A total of 59 of the 237 participants of the sample were male.

Table 1. *Distribution of participants based on their nationality and gender*

Country	Gender	Student
Iran	Male	33
	Female	116
	Total	149
Spain	Male	26
	Female	62
	Total	88
Total	Male	98
	Female	179
	Total	237

As illustrated in Table 2 that the distribution of students' qualifications (in terms of BA, MA and PhD) were not uniform in the sample. The minority group in terms of education level was PhD students who summed up to 31 participants, while the major group was BA participants with 107.

Table 2. *Distribution of participants based on their educational level*

Country	Educational Level	Student
Iran	BA	73
	MA	59
	PhD	17
Spain	BA	34
	MA	40
	PhD	14
Total	BA	107
	MA	99
	PhD	31

As far as age was concerned, as depicted in Table 3, the largest category of student participants (69 participants) fell within the age range of 18 to 23. On the other hand, the smallest groups in student participants were the category of 30 to 35 (20.3%) and the category of 36 and above (24.5%), respectively.

Table 3. *Distribution of participants based on their age groups*

Country	Age group	Student
Iran	18-23	49
	24-29	41
	30-35	36
	36 and above	23
Spain	18-23	20
	24-29	21
	30-35	12
	36 and above	35
Total	18-23	69
	24-29	62
	30-35	48
	36 and above	58

2.2 Instrumentation

Applying the Delphi methodology is one way to make an effective decision. After designing the initial questionnaire, it was submitted to a panel of experts included twenty PhDs in different fields of Applied Linguistics, Computer Sciences, English Language Teaching, and Computer-Assisted Language Learning, from different parts of the world such as Iran, Spain, the USA and the UK, among other countries. In this methods, data collection and analysis was conducted through (1) the discovery of opinions; (2) the process of determining the most important issues; and (3) managing opinions (Keeney, Hasson & McKenna, 2000). In the first step, the researchers discovered the opinions of panel to reach consensus on the content of the questionnaire. In the second step, content analysis technique was applied in order to analyze collected data. In the last step, at the end of three rounds, the researchers finalized the questionnaire and prepared it for distribution.

After reaching consensus of opinions on the content of the questionnaire, 14 demographic information and 10 open-ended questions were included in the final version of this instrument. The survey as a questionnaire is one of the most usual methods of data collection on perceptions and opinions in a large-scale research (Mackey & Gass, 2005). Researchers use online questionnaire to collect data from language students to know about their attitudes, perceptions and/or reactions about the implementation of technology in their language learning process, settings, activities, etc. Providing automatic data coding, data input, data editing and data assessment are among the features of the online questionnaires. In addition, the participants have easy access to the questionnaires via the provided online link.

2.3 Research Design

This cross-cultural and qualitative study applied an online questionnaire included open-ended questions to understand the perceptions and attitudes of language students in Iran and Spain towards CALL. A manual SWOT analysis (which stands for Strength, Weakness, Opportunity, and Threat) of the gathered data from the participants was applied. The statistical analysis included content analysis of qualitative data to categorize and arranging them into the SWOT matrix. Content analysis was applied in the current study, "a research technique for making replicable and valid inferences from data to their context" (Krippendorf, 1980, p. 21) and which "uses a set of procedures to make valid inferences from text" (Weber, 1990, p. 9).

2.4 Data Analysis

The SWOT analysis is a scientific way to address the strengths, weaknesses, opportunities, and threats of a phenomenon to analyze the intervening determinants for progress and forecast the potential obstacles. The SWOT analysis is broadly used for "strategic planning of long-term and short-term development" (Thamrin & Pamungkas, 2017, p. 144). Different stages of SWOT analysis were utilized in this study including: (a) data gathering, (b) classifying data into strengths, weaknesses, opportunities or threats, (c) specifying the weight of each factor, (d) determining rates, and (e) reporting the result.

In this study, the researchers made a questionnaire-based system in order to automate SWOT analysis process (see Figure. 1). The SWOT matrix was built upon the questionnaire responses of language students

in two countries (Iran and Spain). The nature of the collected data was qualitative. In order to determine the positive or negative mood of the qualitative responses, text processing in the form of content analysis is required.

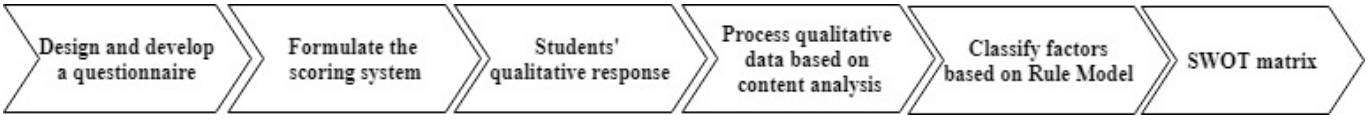

Figure. 1. Data analysis process

The collected qualitative data of the study were in the form of text description which need content analysis before classifying them into the SWOT matrix. The total of weight scores were calculated and then classified the content of each data into relevant SWOT categories: strengths, weaknesses, opportunities, and threats. The researchers adopted the Rule Model (Thamrin & Pamungkas, 2017) to classify the factors based on students' responses (see Table 4).

Table 4. *Rule Model (Adopted from Thamrin & Pamungkas, 2017)*

		Score	
		Positive	**Negative**
Factor	**Internal**	Strength	Weakness
	External	Opportunity	Threat

3. Results

Before going through the results of the study, the researchers want to point out that the SWOT matrix of this study was designed based on participating students' point of view, which might be quite different from other groups (e.g. teachers, administrators, etc.). Hence, internal factors are those dealing with students, whereas external factors deal with teachers and technology itself.

First Research Question: *What are the strengths, weaknesses, opportunities, and threats of CALL in language education based on Iranian and Spanish students' perceptions and attitudes?*

Table 5. *SWOT Matrix for language students in Iran and Spain, arranged based on frequency*

Strengths	Weaknesses
• CALL provides wide range of tools, resources and materials (IR/ES) • CALL helps students to learn more efficient and effective (IR/ES) • CALL improves language learning (IR/ES) • CALL provides real communication with native speakers (IR/ES) • CALL decreases students' anxiety and stress (IR/ES) • CALL provides immediate, unbiased and constant feedback (IR/ES) • CALL makes students autonomous (IR/ES) • CALL increases peer interactions (IR/ES) • CALL provides authentic materials (IR/ES) • CALL increases students' motivation (IR/ES) • CALL facilitates learning (IR/ES)	• Students' lack of CALL/computer/technology literacy (IR/ES) • CALL distracts students (IR/ES) • CALL decreases face-to-face interactions (IR/ES) • CALL does not provide concise feedback (IR/ES) • CALL makes students more dependent on technology (IR/ES) • Variety of CALL materials confuses learners (IR) • Students do not feel confident is using CALL (IR) • CALL does not address all learning styles (ES)

• CALL enhances students' self-confidence (IR) • CALL boosts personalized learning (IR/ES) • Students can monitor their progress through CALL (IR) • CALL meets different learning styles (IR)	
Opportunities	Threats
• CALL is fun, interesting, and joyful (IR/ES) • Learning with CALL is convenient and comfortable (IR/ES) • CALL is accessible and available (IR/ES) • Working with CALL is fast (IR/ES) • Ubiquitous learning (IR/ES) • CALL is flexible (IR/ES) • CALL is modern and up-to-date (IR/ES) • Working with CALL is saving time, money, and energy (IR/ES) • CALL is accurate and precise (IR) • CALL is interactive (IR/ES) • CALL is attractive (IR/ES) • CALL is user-friendly (IR/ES)	• Technical issues (IR/ES) • CALL breaks down (IR/ES) • Lack of facilities and infrastructure (IR/ES) • Working with CALL is time-consuming (IR/ES) • CALL is expensive (IR) • CALL is boring (IR) • CALL is not available (IR) • Health effect (IR/ES) • Bad or low quality content (IR/ES) • CALL hinders the role of teachers (IR/ES) • CALL does not provide enough guidelines (IR) • Teachers' lack of CALL/computer/technology literacy (IR) • CALL is complex and not user-friendly (ES) • CALL is not reliable (IR)

IR: Iranian language students
ES: Spanish language students

As illustrated in Table 5, from the positive point of view, the participating language students in Iran and Spain counted common strengths for CALL. According to their reports, (1) CALL provides wide range of tools, resources and materials, (2) CALL helps students to learn more efficient and effective, (3) CALL improves language learning, (4) CALL provides real communication with native speakers, (5) CALL decreases students' anxiety and stress, (6) CALL provides immediate, unbiased and constant feedback, (7) CALL makes students autonomous, (8) CALL increases peer interactions, (9) CALL provides authentic materials, (10) CALL increases students' motivation, (11) CALL facilitates learning, and (12) CALL boosts personalized learning. It must be mentioned that the researchers specified a code in brackets to each student in the sample (see 'Appendix A' for further details on students' profile). Regarding CALL, one of the students stated that:

> [S16]: I think CALL helps learners be more active and confident. Besides, it facilitates learning for those who are not able to communicate easily.

Furthermore, the participating students addressed some features which dealt with the CALL itself. They believed that CALL is (1) fun, interesting, and joyful, (2) accessible and available, (3) flexible, (4) modern and up-to-date, (5) interactive, (6) attractive, and (7) user-friendly.

> [S244]: CALL is interactive, you can put games in class, to look for interesting listening on Internet about whatever topic, to look for the news and learn Real vocabulary, etc.

[S115]: I think CALL would be so amazing and it will attract many students. And I think it will have more efficiency than the usual and old teaching or learning methods.

In addition, the Iranian and Spanish students acknowledge some more opportunities provided by CALL: (1) Learning with CALL is convenient and comfortable, (2) Working with CALL is fast, (3) Ubiquitous learning, and (4) Working with CALL is saving time, money, and energy.
On the opposite side, many students reported weaknesses of CALL such as (1) students' lack of CALL/computer/technology literacy, (2) CALL distracts students, (3) CALL decreases face-to-face interactions, (4) CALL does not provide concise feedback, and (5) CALL makes students more dependent on technology.

[S211]: I love using technology when learning a new language as it can become far more interactive and motivating. However, I truly believe that both teachers and students are not really prepared in order to squeeze its advantages.

[S262]: Software that is difficult for a learner to use or which doesn't give sufficient feedback and encouragement when students make mistakes.

Finally, other barriers in implementing CALL such as (1) technical issues, (2) technology breaks down, (3) lack of facilities and infrastructure, (4) time-consuming, (5) health effect such as eyestrain, (6) bad or low quality content, and (7) hindering the role of teachers through CALL, were counted as threats for implementing CALL in language education based on students' perceptions.

[S1130]: The point is that I'm Iranian and I live in Iran. So we have some problems such as poor [inter]net speed and disconnections of the internet devices. So these are some problems that should be solved in our country to have the best result.

[S285]: Internet access and malware can be problem sometimes (unexpected pop-ups that contains nudity)

Second Research Question: *What are the differences between Iranian and Spanish language students' perceptions and attitudes towards CALL?*
As depicted in Table 5, different perceptions are reported by the language students in Iran and Spain. Language students in Iran highlighted some key factors more than Spanish students. In their point of view, (1) helping students to learn more efficient and effective, (2) providing real communication with native speakers through CALL, and (3) decreasing students' anxiety and stress, are more critical than other factors.

However, for Spanish students providing immediate, unbiased and constant feedback through CALL has more weight in compare to Iranian perception. It should be note that there are some strengths for Iranian students such as (1) CALL enhances students' self-confidence, (2) students can monitor their progress through CALL, and (3) CALL meets different learning styles, which the researchers could not find any track of them among Spanish students' responses.

Data analysis also revealed that, in opportunities category, some advantages such as (1) CALL is fun, interesting, and joyful, (2) learning with CALL is convenient and comfortable, (3) CALL is accessible and available, (4) working with CALL is fast, and (5) CALL is modern and up-to-date, were more in favor of Iranians rather than Spanish students.

> [S23]: I do support the use of technology in language courses, of course by considering several factors first, like its availability, access, students' competence in using technology, time management, and other factors which might be interfering the technology use.

However, more students in Spain perceive that CALL is flexible than Iranian language students. More surprisingly, only Iranian students believed that CALL is accurate and precise.

The contradiction between Iranian and Spanish language student were also observed in negative perceptions towards CALL. On the one hand, many Iranian students complained about their lack of CALL/computer/technology literacy. On the other hand, Spanish students more focused on the distracting function of the CALL. Even more, none of the Spanish language students reported the confusion caused by the variety of CALL Materials for learners, and the lack of confidence in using CALL, but Iranians did. However, only Spanish students stated that CALL does not address all the students' learning styles.

Finally, regarding threats category, more Iranian participating students complained about technical issues of the CALL than Spanish students. In addition, only Iranian students declared the followings as the threat for implementing CALL: (1) CALL is expensive, (2) CALL is boring, (3) CALL is not available, (4) CALL does not provide enough guidelines for the users, (5) teachers' lack of CALL/computer/technology literacy, and (6) CALL is not reliable. In opposite, only Spanish students believed that CALL is complex and not user-friendly.

> [S211]: Most of the times [teachers] are not prepared enough if they have to overcome possible problems -neither the projector nor the computer does not work, or they cannot open the file.

> [S237]: [Teachers] have to know the specific tools and software very well, which isn't always the case. They rely on aspects such as connection which aren't always that trustworthy.

> [S139]: Just the price… Some of the software and apps are expensive .and I think this point related to disadvantage of using technology.

[S262]: Not only choosing applications which are appropriate for the students and their tasks but understanding how to use them, and to relate any results derived to actual student ability.

4. Discussion

The finding of the content analysis revealed that many language students in Iran and Spain approved that CALL provides wide range of tools, resources and materials for language learning. This finding is in line with previous studies on the opportunities provided by variety of CALL tool, materials, and programs such as Learning Management System (LMS) (Evseeva & Solozhenko, 2015), Social Networking Sites (SNS) (Akbari, Pilot & Simons, 2015; Brick, 2015), and mobile applications (Godwin-Jones, 2011).

[S262]: The wide variety of tools available means that there is always a tool that at least one student enjoys using.

Moreover, data analysis showed that participating language students in Iran and Spain counted some positive features for implementing CALL in language classrooms, which is in line with previous studies in the field regarding the following features: efficient (Golonka, Bowles, Frank, Richardson & Freynik, 2014), convenient (Kvavik, 2005), user-friendly (Stiler & Philleo, 2003), fun, interesting, and joyful (Balakrishnan, Liew & Pourgholaminejad, 2015), flexible (Wanner & Palmer, 2015), interactive (Takacs, Swart & Bus, 2015), and attractive (Shyamlee, 2012).

[S150]: It never gets boring, and it is much fun to learn by CALL method than traditional ways.

[S288]: CALL makes language learning flexible and accessible. Instead of traveling or extensively looking for language partners to practice, virtual education makes it possible to connect with other speakers or learners to practice.

The participants also added that one of the most significant features of CALL is to provide rich, real and authentic communication, environment and materials. Real communication and authentic environment is a desirable element in effective learning (Hwang, Ma, Shadiev, Shih & Chen, 2016). In addition, authenticity of environment and materials emphasizes meaningful learning in contexts that involve real-world communications (Shadiev & Huang, 2016).

[S246]: Applying technologies in language courses makes the learning more meaningful to students and makes them feel more comfortable.

Another critical factor which plays as a barrier for language learning psychological factor (Gkonou & Miller, 2017). However, based on the perceptions of language students in the study, CALL decreases students' anxiety and stress. The finding is in agreement with Lai and Kritsonis (2006) who claimed that "computer technology can provide a lot of fun games and communicative activities, reduce the learning stresses and anxieties" (p. 2).

> [S114]: CALL provides anxiety free classroom in which both teachers and learners feel confident.

A substantial determinant of the assessment for learning approach is the feedback provided to students (Stobart, 2008), which is also considered as one of the most effective medium to enhance student learning (Hattie & Gan, 2011). The students in the study highlighted that CALL gives learners immediate, unbiased, and constant feedback. CALL has the capability of providing timely feedback. According to Hattie and Timperley (2007), provided feedback in CALL can serve to immediately bridge the gap between students' current level in the learning process and the expected learning outcomes. This means that CALL could help teachers in providing instant and individualized feedback, which is in line with both participants' claims and previous research in the field (e.g. Mokhtarnia & Tafazoli, 2013; Tafazoli, Nosratzadeh & Hosseini, 2014).

> [S262]: I am very much in favour as long as it is directly relevant to the tasks students need to be able to do in real life, and that it is easy for students and teachers to use and get constructive feedback from.

Undoubtedly, enhancing students' autonomy is one of the major duties of educational systems. Lai, Yeung and Hu (2016) even go further and stated that a fundamental educational aim is to support learners to become autonomous learners who actively apply technologies to build their own personalized learning spaces that totally in congruent with language students who claimed that CALL boosts learners' autonomy. Moreover, the Iranian and Spanish participants emphasized the positive effect of CALL on peer collaboration and interactions. There is a good number of research dedicated to the positive effects of technology on enhancing peer interaction and sharing knowledge among participants (e.g. Ioannou, Brown & Artino, 2015; Li & Kim, 2016). Neumann and McDonough (2015) affirmed, "interaction plays an essential role in knowledge-building by creating opportunities for learners to elicit help from experts or simply articulate steps in the problem-solving process through internal or external speech" (p. 84).
Enhancing students' motivation and interest via CALL is another strength for implementing CALL which is extracted from participating students in the study and cited by other scholars (González-Gómez, Guardiola, Rodríguez & Alonso, 2012; Yilmaz, 2017). Motivation could be assumed as the most important determinant of educational design (Keller, 1979) which has a significant effect on students' attitudes

(Golshan & Tafazoli, 2014; Tafazoli, Gómez & Huertas, 2018), and learning behaviors in educational contexts (Fairchild, Jeanne-Horst, Finney & Barron, 2005).

> [S123]: It is very useful because by using technology we can make the atmosphere of the class and the course books more interested and improve learners' motivation.

Students also reported that CALL gives opportunities for personalized learning. We use the term 'personalized' as each learner has the chance to learn at their own pace (Basal, 2015). In other words, as Parsons and Beauchamp (2012) stated, learners allowed to "progress through the material at different speeds according to their learning needs. Some students take longer to finish a topic, might skip topics that cover information they already know, or might repeat topics if they need more help" (p. 220).

In addition, students accentuated 'ubiquitous learning' feature of the CALL which result in variation in students' behavior (Geddes, 2004). Also, Wang and Shih (2015) affirmed "mobile-mediated learning could offer opportunities for learning to occur anytime and anywhere, and create an efficient, flexible and motivating condition for autonomous learning" (p. 374).

Although the responses of the participating students were in favor of CALL, the students reported some drawbacks of implementing CALL. Students' lack of CALL/computer/digital literacy should be considered as the most significant pitfalls of CALL – based on the frequency of students' responses and the significance of issue itself. Although many studies concentrated on the concepts of computer and digital literacies or competencies (Ilomäki, Paavola, Lakkala & Kantosalo, 2014; Røkenes & Krumsvik, 2016; Tafazoli, Gómez & Huertas, 2017) and its importance in teacher education (Arnold & Ducate, 2015) – also reported by the participants, none of the previous research dealt with the critical concept of CALL literacy (Tafazoli, 2018).

Students also reported that implementing CALL might results in students' confusion and distraction which supports the previous study by Montrieux, Vanderlinde, Schellens and De Marez (2015) and in contrast with other studies (de la Fuente, 2014; Oberg & Daniels, 2012).

> [S282]: Focus point changes from teachers to technology as they want to tell something about the topic, it takes some time for students to change focus point, students get confused too.

> [S23]: I need to really focus and not being distracted by other apps. Furthermore, I need a good condition of my gadgets and good internet access, which sometimes become my problems.

Moreover, Iranian and Spanish students claimed that using CALL decreases face-to-face interaction among students and between teacher and students which previously reported by different scholars in the field (Arkorful & Abaidoo, 2015; Lintunen, Mutta & Pelttari, 2017; Kung, 2015; Shyamlee, 2012).

[S288]: The authentic exposure to culture and language interaction. I like to interact with people face-face and learn about linguistic and cultural connotations.

In addition, a few of students stated that CALL does not provide concise feedback. This finding is totally in contrast to previous studies which support the provided feedback through CALL (Hattie & Timperley, 2007; Mokhtarnia & Tafazoli, 2013; Tafazoli, et al., 2014).

[S220]: Automatic feedback is often not useful (I think this will change with integrating and improving AIs [Artificial Intelligences]).

Students' over-dependency to technology, many students call it 'addiction to technology', might act as a hindrance to implement CALL in the classrooms. If the autonomous learner is the aim of education – based on constructivist perspective, then 'addiction to technology' caused by CALL would not be a supportive statement in educational context. This result totally in opposite to Sung, Chang and Liu's (2017) study which conclude that CALL could foster independent learning.

As classified in threats category, different participating students stated that technical issues and CALL breaks down (Laabidi & Laabidi, 2016) are the main threats of CALL implementation. Although, these threats are not human-oriented and outside the territory of language students and teacher, we cannot ignore that and we have to find a remedy for that. Many of threats are in institutional level such as lack of facilities and infrastructure in educational institute (Chouit, Nfissi & Laabidi, 2017; Nova, 2017).

[S175]: Lack of sufficient hardware and software in language institutes in lower levels of society.

Many of threats are based on the nature of CALL itself. CALL is expensive, complex (Arkorful & Abaidoo, 2015), not user-friendly, time-consuming, boring, not reliable, and not available (Laabidi & Laabidi, 2016; Sadaf, Newby & Ertmer, 2015). Last but not the least, some students believed that CALL harms their health (eyestrain) and some of CALL materials have bad or low quality content. Finally, CALL hinders the role of teachers, and the students need enough guidelines for implementing CALL which is not available.

[S269]: Technology gives us freedom to use the resources, at many times without proper guidance. Either there is the absence of a tutor or the resource doesn't make available tools to measure performance.

[S1141]: I think the damages to eye is the most important negative outcomes. And as a student I think we should not always rely on technology I think we should be active and creative

ourselves .I myself use technology most of the time and I change the type of technology and try to be creative in using technology.

At the end of the discussion section, research would like to present the overall perception of few of students:

[S215]: CALL must be guided to, gaming, projects, research, support in discussions activities, etc. in short, uses of technologies in language courses ought to capt attention of students not by its own name (i-tech), but by pleasant actions that let students feel themselves more confident and comfortable in the appropriate action of learning.

[S123]: One of the negative outcomes is that computers are restricted and they cannot answer every aspect of English lessons, because they are the man-made product. So restriction is the negative point of computers.

[S227]: I am optimistic about the future of TELL in Spain. More and more people are using it to either learn language or practice it more in order to be better and variety of online activities gives a good choice of extracurricular activities.

[S258]: Technology is useful if you are clear about the reasons to use it. The questions should always be: what do I want to learn? What is the best or more practical way to do so?

[S156]: I think using technologies it's very good and no have big challenges to learning language .but any methods or facilities that are use to learn language have some advantages and some disadvantages.

[S266]: (1) Too much time using a computer or tablet is tiring. (2) I think some teachers use videos too long in class without a clear goal. They are just filling up the time.

[S1123]: CALL is very interesting, it can motivate students and add variety to the classroom, but for Iran it is not totally applicable in all cities due to the internet problems.
[S288]: CALL depicts interest and exposes learners to global issues. I am a believer in virtual Intercultural exchange programs and have come to observe its impact on motivation for learning and promoting global competence besides interest in interacting using the target language.

5. Conclusion

The purpose of this cross-cultural study was to explore the strengths, opportunities, weaknesses, and threats

of Computer-Assisted Language Learning (CALL) based on language students' attitudes and perceptions in Iran and Spain, and the existent differences between these two contexts. To meet the end of the study, the researchers applied Delphi methodology, a SWOT matrix, and content analysis. The findings revealed the followings among the most relevant strengths: (1) CALL provides wide range of tools, resources and materials, (2) CALL helps students to learn more efficient and effective, (3) CALL improves language learning, (4) CALL provides real communication with native speakers, (5) CALL decreases students' anxiety and stress, (6), CALL provides immediate, unbiased and constant feedback, and (7) CALL makes students autonomous. Among the opportunities participants claimed: (1) CALL is fun, interesting, and joyful, (2) learning with CALL is convenient and comfortable, (3) CALL is accessible and available, (4) working with CALL is fast, (5) ubiquitous learning, and (6) CALL is flexible.

The major weaknesses identified were (1) students' lack of CALL/computer/technology literacy, (2) CALL distracts students, (3) CALL decreases face-to-face interactions, and (4) CALL does not provide concise feedback. Finally, among threats these were the most salient features of our analysis: (1) Technical issues, (2) CALL breaks down, (3) Lack of facilities and infrastructure, (4) Working with CALL is time-consuming, (5) CALL is expensive, (6) CALL is boring, and (7) CALL is not available.

This study suggests that the efficient implementation of CALL in language learning is hindered by different unique determinants. Based on the findings of the present study, a number of implications related to CALL implementation in language education can be drawn from this piece of research, which can be summed up as follows:

(1) Running more obligatory or voluntarily CALL programs in order to enhance students' CALL literacy, (2) Enhancing students' psychological traits in order to overcome anxiety, stress, etc., (3) Providing students with standardized CALL materials and tools, (4) Encouraging institutions to develop and complete their technological equipment, facilities, and infrastructure, (5) The governments and their education departments/bodies should provide economical facilities for educational institutions to improve their educational equipment and infrastructures, and (6) Enhancing teacher' teacher education programs in order to enhance their CALL literacy.

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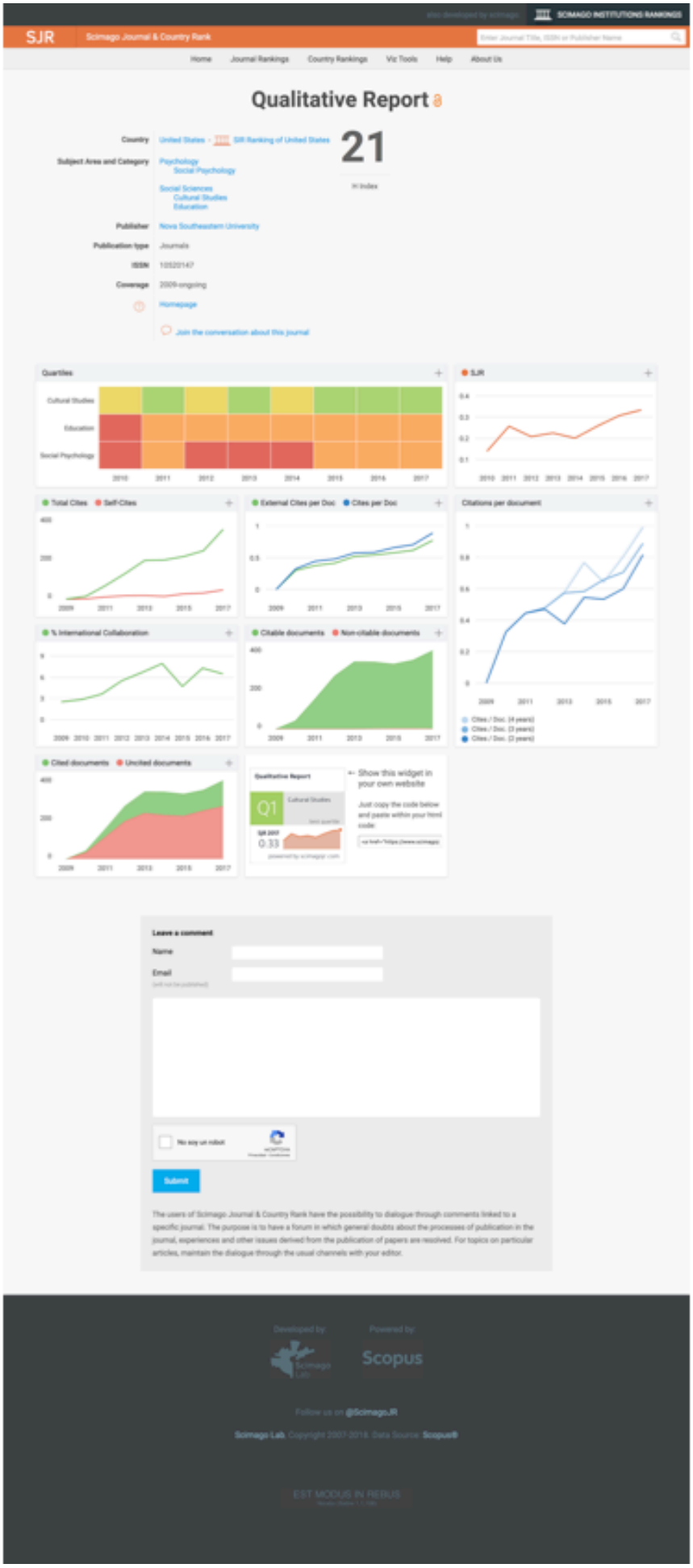
Appendix A

Mentioned participating students' profiles in the text (arranged based on the appearance):

Code	Country	Gender	Age range	Academic degree	Teaching experience	Learning place	Experience of CALL implementation
S16	Iran	Female	24-29	PhD	7-9 years	HEI	Yes
S244	Spain	Female	+36*	BA	+10 years**	HEI	Yes
S115	Iran	Female	18-23	BA	7-9 years	HEI	Yes

S211	Spain	Female	24-29	BA	+10 years	LS	Yes
S262	Spain	Male	+36	MA	+10 years	LS	Yes
S1130	Iran	Female	30-35	MA	+10 years	HEI	Yes
S285	Spain	Female	24-29	MA	+10 years	HEI	Yes
S23	Spain	Female	24-29	BA	+10 years	HEI	Yes
S237	Spain	Female	24-29	MA	+10 years	LS	Yes
S139	Iran	Female	24-29	PhD	7-9 years	HEI	Yes
S150	Iran	Male	18-23	BA	3	HEI	Yes
S288	Spain	Female	30-35	MA	+10 years	LS	Yes
S246	Spain	Female	24-29	MA	+10 years	HEI	Yes
S114	Iran	Female	18-23	BA	7-9 years	LS	Yes
S123	Iran	Female	24-29	MA	2	LS	Yes
S282	Spain	Female	24-29	BA	+10 years	LS	Yes
S220	Spain	Female	+36	BA	+10 years	HEI	Yes
S175	Iran	Male	30-35	MA	7-9 years	HEI	Yes
S269	Spain	Male	30-35	BA	+10 years	HEI	Yes
S1141	Iran	Female	24-29	BA	+10 years	HEI	Yes
S215	Spain	Male	+36	BA	+10 years	LS	Yes
S227	Spain	Male	24-29	MA	+10 years	HEI	Yes
S258	Spain	Female	+36	MA	+10 years	LS	Yes
S156	Iran	Female	24-29	BA	+10 years	HEI	Yes
S266	Spain	Female	+36	PhD	+10 years	HEI	Yes
S1123	Iran	Male	24-29	MA	+10 years	HEI	Yes

+36* = 36 and above
+10 years** = 10 years and more
LS = Language schools
HEI = Higher Education Institution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9. Study 8: Computer Assisted Language Learning Literacy: A Cross-Cultural Study on Iranian and Spanish Language Teachers and Students

Computer Assisted Language Learning Literacy:

A Cross-Cultural Study on Iranian and Spanish Language Teachers and Students

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Abstract

The purpose of this cross-cultural study was to explore the current level of Computer Assisted Language Learning (CALL) literacy of language teachers and students in Iran and Spain. Moreover, the relationships between CALL literacy and their nationality, age, and educational level are investigated. The study was based on a sample of 318 language teachers and 307 language students in Iran and Spain. Data collection was carried out through two online questionnaires (56 items) for both teachers and students. To make a sound decision, the researchers agreed to utilize the Delphi method, so that appropriate experts were chosen in order to ensure a valid study. In the data analysis phase, descriptive, *t*-test and one-way ANOVA analyses were performed to find the answers of the research questions. The findings of the study revealed that there is no difference between CALL literacy of language teachers and students in terms of their nationality, age and educational levels. However, the findings revealed that MA and PhD students were more CALL literate than BA students. Finally, pedagogical implications and recommendations for further research are presented.

Keywords: Computer Assisted Language Learning (CALL) literacy, Cross-cultural study, Nationality, Age, Educational level

1. Introduction

Technology has effectively altered our personal and professional lives. In such a revolutionary digitalized world, both teachers and learners are urged to build up their knowledge in nonlinear settings hindered by different digital tools and devices. Martin and Grudziecki, (2006) even go further by stating "… it would be wrong to think that we live in the Digital Society… We have made the Information Society and the Digital Age for ourselves" (p. 249).

Nowadays, virtual environments have devised our real learning environments in which casual writing and speaking is preferable to formal (Hampel & Hauck, 2006). Moreover, Kress and van Leeuwen (2001) mentioned that the "new technologies' emphasis on multimodality, three-dimensionality and interactivity can be seen as a return of many of the things that were lost in the transition from 'orality' to 'literacy'" (p. 92). Hence, these new learning environments lead us to revise the term of "literacy".

There is a considerable amount of research that tackles to appraise Computer Assisted Language Learning (CALL) and its programs from a variety of aspects (e.g. Hsie, Wu & Marek, 2017; Ma, 2017; Mei, Brown & Teo, 2017; Rienties, Lewis, McFarlane, Nguyen & Toetenel, 2018; Shadiev, Hwang & Huang, 2017; Xu & Peng, 2017). The literature shows that most of the research studies on CALL concentrate on the applied tools and devices, learning tasks, and learners who are the end users of CALL (Chapelle, 2003). However, only two paper presentations (Tafazoli, 2014; Tafazoli & Gómez, 2017), and one workshop (Tafazoli, 2018) dealt with the critical concept of CALL literacy. The researchers believed that the ultimate goal of CALL is not only to decorating and furnishing the classrooms with different technology-based tools by educational administrators, but to provide an appropriate setting which facilitates language learning (Tafazoli, Gómez & Huertas, 2018), in order to empower teachers' and learners' literacy. Therefore, considering the product end-users' CALL literacy should be another role of educational scholars and researchers. The more CALL literate students and teachers, the more appropriate applications they will have to use CALL.

This cross-cultural study attempted to respond to the need by exploring the current level of CALL literacy of language teachers and students in two different countries: Iran and Spain. Moreover, the study investigated the relationship between demographic features such as gender, age, and educational level and the CALL literacy of the participants.

Therefore, our research seeks to answer the following research questions:

RQ1: What is the current level of Spanish and Iranian language students' and teachers' CALL literacy?

RQ2: Is there any significant difference among the language students' CALL literacy in terms of nationality?

RQ3: Is there any significant difference among the language teachers' CALL literacy in terms of nationality?

RQ4: Is there any significant difference among Spanish and Iranian language students' CALL literacy in terms of their age?

RQ5: Is there any significant difference among the Spanish and Iranian language teachers' CALL literacy in terms of their age?

RQ6: Is there any significant difference among the Spanish and Iranian language students' CALL literacy in terms of their educational level?

RQ7: Is there any significant difference among the Spanish and Iranian language teachers' CALL literacy in terms of their educational level?

2. Computer Assisted Language Learning Literacy

Learning changes is one of the main factors in defining "literacy". Several models have been suggested by different scholars around the world, among which three can be highlighted: a) the functional model, b) the socio-cultural practice model, and c) the intellectual empowerment model (Bélisle, 2006). According to a report carried out by UNESCO (2006), the functional model limits literacy to the mechanical skills of writing and reading. In addition, Street (1984) believed that the socio-cultural practice model, as the name suggests, views literacy as having access to cultural, economic and political constructs of the society. Finally, the intellectual empowerment model, which we think more suitable for 21st century digital world, asserts that literacy causes the transformation of thinking capacities especially when new cognitive tools, such as writing or new processing tools (e.g. digital word processors) are evolved (Martin & Grudziecki, 2006).

Different scholars have defined the term "digital literacy" (Aviram & Eshet-Alkalai, 2006; Warschauer & Matuchniak, 2010). Based on emerging learning needs, the 'Four Cs of the 21st Century Learning' (critical thinking, communication, collaboration, and creativity) are proposed to fulfill the needs of the learners. However, Dudeney, Hockly and Pegrum (2013) provided a set of 21st century skills including all the 'four Cs', except communication, along with autonomy and flexibility and lifelong learning, and merged with an ability to interpret, manage, share and create meaning in the growing range of digital communication channels, and they called these skills as 'digital literacy' or 'computer literacy'. The definition of digital or computer literacy has changed over time. Son, Robb and Charismiadji (2011) defined computer literacy, in general, "as the ability to use computers at an adequate level for creation, communication and collaboration in a literate society" (p. 27).

The above-mentioned changes in the definition of literacy have led to a new shift in the concept of literacy from "the ability to read and write in a predominantly printed context" (Goodfellow, 2011, p.131) to the new literacies. As depicted in Table 1, new literacies were emerged from 1996 to date.

Table 1. *Views of literacy* (Tafazoli, Gómez & Huertas, 2017, p. 717)

Type	Literature
computer literacy	Corbel, 1997
cyberliteracy	Gurak, 2001
digital literacy	European Commission, 2003
electracy	Ulmer, 2003
electronic literacies	Warschauer, 1999
eLiteracy	Martin, 2003
ICT literacy	Educational Testing Service, 2005
media literacy	Kubey, 1997; Livingstone, 2003; Potter, 2004
multiliteracies	Cope & Kalantzis, 2000; Unsworth, 2001
multimedia literacy	New London Group, 1996
multiple literacies	Kellner, 2002
new literacies	Lankshear & Knobel, 2003
online literacy	Tuman, 1996
silicon literacies	Snyder, 2002

technoliteracy	Lankshear & Synder, 2000; Luke, 1997
visual literacy	Curtis, 2004; Moore & Dwyer, 1994

Tafazoli (2018) believed that none of the mentioned literacies could fulfill all the needs of the 21st century language teachers and learners. None of the new literacies such as 'cyberliteracy' (Gurak, 2001), 'digital literacy' (European Commission, 2003), 'electracy' (Ulmer, 2003), 'electronic literacies' (Warschauer, 1999), 'eLiteracy' (Martin, 2003), 'ICT literacy' (Educational Testing System, 2007), 'media literacy' (Aufderheide, 1993), 'technoliteracy' (Kimber, Pillay & Richards, 2007), etc. deals with the nature of language teaching and learning. Computer Assisted Language Learning (CALL) as a new approach to language learning and teaching is defined as any applications of technology to language teaching and learning (Tafazoli, 2015), which could be assumed as a paradigm shift in order to meet teachers' and students' needs in our digital world.

Rooted in CALL, Tafazoli (2014, 2018) defined a new literacy called 'CALL literacy', which is particularly defined for language learning and teaching. This author defined 'CALL literacy' as "the ability to use technology at an adequate level for teaching or learning a language" (Tafazoli, 2014, 2018). Therefore, the three main core components of this new literacy are 1) language literacy, 2) language teaching/learning literacy, and 3) computer literacy. In other words, the bigger the area of CALL literacy, the more competent teacher/learner would be in today and future language education system.

3. New Literacies in Language Learning and Teaching

An appeal for new literacies called 'computer literacy', 'IT literacy', 'ICT literacy', etc. has been aroused since the late 1960s. The importance of students' and teachers' computer literacy has been investigated in many studies (e.g., Atkins & Vasu, 2000; Cunningham, 2000; Johnson, 2002; Lam, 2000; Oh & French, 2007; Park & Son, 2009; Shin & Son, 2007).

Undoubtedly, complying with new literacies in the second and foreign language classrooms is a demanding task for both language teachers and learners (Tan & McWilliam, 2009; Valdés, 2004; Warschauer, 2008b). Even in developed countries with fully furnished technological infrastructures, second and foreign language learning and teaching contexts have been shown to be depreciating the benefits of educational technologies (Ware, 2008). In order to develop electronic literacy in educational contexts, Reinking (1994) proposed four criteria for activities: 1) relate to traditional printed literacy, 2) involve authentic communication and meaningful tasks, 3) engage students and teachers in higher levels of thinking, and 4) develop functional strategies.

Rilling, Dahlman, Dodson, Boyles and Pazvant (2005) assert that, in consideration of successful integration of technology into language classrooms, teachers necessitate to shape their working knowledge and skills in online environments. Moreover, teachers should improve their technical skills in order to employ different computer applications for educational purposes (Cunningham, 2000). Thus, in CALL, one of the most critical aspects in language teacher education is the enhancement of their computer literacy (Hong, 2010) and acknowledging the demand for technology-competent language teachers (Hubbard, 2008). In other words, there will be greater professions for computer-literate teachers than those who lack this literacy (Tafazoli, Gomez & Huertas, 2017).

As Hall (2001) states "How well we prepare learners of additional languages to meet the social, political, and economic challenges of the next several decades will depend in part on our success in integrating technology into the foreign language curriculum" (p. 60). However, we should care about the issue that the only integration of technology is not an important issue, but integrating suitable technology-based tools and devices which are important for language learning and teaching. To explain more, the technology itself cannot enhance language learning and teaching; the knowledge of how to use technology in language learning and teaching contexts is the case (Kern & Warschauer, 2000).

In the U.S., Warshcauer's (2008a) 2-year multi-site case study was to qualitatively explore literacy practices of teachers, students, school staff members and parents based on a 'sociocultural framework of literacy' (Gee, 1996). Three different techniques of observation (650 hours), interviews (with 61 teachers, 32 school staff members, 67 students, and 31 parents), surveys (from 35 teachers and 877 students), and document reviews (teaching materials, student assignments, and student test scores) were applied in order to collect data. In the ICT literacy phase of the study, the findings revealed that continual and regular access to the Internet led both teachers and students to go beyond mechanical facets of ICT literacy, and allowed more in-depth skills and proficiencies such as: a) more "just-in-time" learning, b) more individualized learning, c) greater ease in conducting research, and d) more empirical investigation (Warschauer, 2008a, p.61).

In Turkey, Konan (2010) conducted a study on 506 teachers in order to specify their levels of computer literacy. The researcher collected data through a questionnaire and analyzed them applying *t*-test and one-way analysis of variance (ANOVA). The results of the study showed significant differences between the levels computer literacy in terms of teachers' gender, experience, and education level. In general, computer literacy of teachers was medium. Nonetheless, computer literacy was higher in favor of male, novice, highly educated, and subject teachers than female, experienced, low educated, and class teachers.
In Indonesia, Son, Robb and Charismiadji's (2011) study was to explore the computer literacy level of 73 in-service teachers of English as a Foreign Language (EFL) and investigate variables influencing on their use of computers in classrooms. In order to collect data, a questionnaire including participants' background, use of computer applications, computer-related questions, computer knowledge test, and factors affecting the use of computers was used. The findings showed that in self-evaluation, most teachers believed that their level of computer literacy, Internet literacy and typing skills were adequate or higher. However, in-depth assessment revealed great individual differences in the level of computer literacy. Son, Robb and Charismiadji (2011) concluded that "these differences bring about a need for a different approach to teacher training for a different background group of teachers, which allows teachers to improve their personal level of computer literacy and competency and gain online experience contextually relevant to their teaching situations" (p.34).

4. Methodology

4.1. Participants

The participants of this study were 625 (318 language teachers and 307 language students) in Iran and Spain. As illustrated in Table 2, 50.94% of the teachers and 69.38% of the students were Iranian. Spanish teachers and students were 49.06% and 30.62% of the sample, respectively. Moreover, female was the dominant gender in the sample with over half of the teacher participants (64.46 %), and over the three quarters of students (76.54). Only 185 of the 625 participants of the sample were male.

Table 2. *Distribution of participants based on their gender*

Country	Gender	Teacher	Student
Iran	Male	69	42
	Female	93	171
	Total	162	213
Spain	Male	44	30
	Female	112	64
	Total	156	94
Total	Male	113	72
	Female	205	235
	Total	318	307

It could be observed in Table 3 that the distribution of BA, MA and PhD teachers were almost equal in the sample. However, this distribution was not equal in student participants. The minority group in terms of education level was PhDs who summed to 131 participants, while the major group was MA participants with 299.

Table 3. *Distribution of participants based on their educational level*

Country	Educational Level	Teacher	Student
Iran	BA	25	106
	MA	92	81
	PhD	45	26
Spain	BA	25	39
	MA	85	41
	PhD	46	14
Total	BA	50	145
	MA	177	122
	PhD	91	40

As far as the age was concerned, as depicted in Table 4, the largest category of teacher participants (170 students) fell within the age range of 36 and above. However, the category of 18 to 23 was the largest in student participants. On the other hand, the smallest groups in teacher and student participants were the category of 18 to 23 (2.51%) and the category of 30 to 35 years old (20.84%), respectively.

Table 4. *Distribution of participants based on their age groups*

Country	Age group	Teacher	Student
Iran	18-23	8	79
	24-29	30	50
	30-35	61	49
	36 and above	63	35
Spain	18-23	0	20
	24-29	15	21
	30-35	34	15
	36 and above	107	38
Total	18-23	8	99
	24-29	45	71
	30-35	95	64
	36 and above	170	73

4.2 Instrumentation

Two parallel CALL literacy online questionnaires were used to collect data on the Iranian and Spanish language teachers' and students' CALL literacy. The questionnaires consisted of 6 sections: Section I (background information), Section II (CALL courses), Section III (CALL tools), Section IV (CALL in action), Section V (Computer software/applications/programs), and Section VI (CALL and language skills and components). To meet the end of the study, all of the sections and items in the questionnaire were designed in order to find out the following questions: 1) Have teachers and students ever undertaken the professional courses? 2) How well do they cope with using different technologies for language teaching and learning? 3) How well do they use technology for teaching and learning purposes? 4) How well do they use different software/applications/programs?, and 5) To what extent are they able to improve their language skills and components with technology?

Table 5. *Distribution of items on the questionnaire*

Construct	Section I	Section II	Section III	Section IV	Section V	Section VI
Question type	Background information	CALL courses	CALL tools	CALL in action	Computer software/ applications/ programs	CALL and language skills and components
Total	14	10	14	12	12	8

4.3 Measurement analysis

To make a sound decision, the researchers agreed to utilize the Delphi method, so that appropriate experts were chosen in order to ensure a valid study. Due to the multidisciplinary nature of CALL, the researchers

decided to arrange the panel of experts based on their expertise. The first draft of the questionnaire for this research was designed and emailed to 20 PhD experts in the fields of Applied Linguistics, Computer Sciences, English Language Teaching, and Computer-Assisted Language Learning, and from different parts of the world such as Iran, Spain, the USA and the UK, among others.

The data collection and analysis phase of the Delphi method was guided by three issues: discovering the experts' opinions; determining the most important issues; and managing opinions (Keeney, Hasson & McKenna, 2000). First, the researchers tried to discover the opinions to reach consensus on the content of the questionnaire. After gathering experts' opinions, data were analyzed through content analysis technique. At the end of three rounds, the researchers agreed on two parallel questionnaires, one for language teachers and another for language students.

Both questionnaires contained 56 items, which measured CALL literacy of language teachers and students, respectively. After administering this questionnaire to the teachers' sample, the researchers first checked the validity of the case processing. All the 318 cases of the sample were valid, and SPSS did not exclude the scores of any of the participants from the processing. Then, the researchers used SPSS to calculate the Cronbach's Alpha Coefficient which was .948 for 56 quantitative items of CALL literacy construct. This indicated that this construct enjoyed ample internal consistency. Moreover, the researchers calculated the reliability of the students' questionnaire. The internal consistency of the students' attitudes towards CALL construct enjoyed a high degree of internal consistency. The Cronbach's Alpha coefficient for this construct was .887 for 56 items.

5. Results and Discussion

RQ1: What is the overall status of Spanish and Iranian language students' and teachers' CALL literacy?
As depicted from Table 6, only 38.86% of the students have undertaken the CALL courses. Among the participants, 58% of them has participated in the introductory courses on internet use and general application. Moreover, although 29.3% of them has participated in the subject-specific training on learning applications courses, the majority of them (70.7%), has not attended in the mentioned courses.

Table 6. *Descriptive statistics of CALL courses for both students and teachers*

		Students	Teachers
Have you ever undertaken the following courses?	Response	Freq. (%)	Freq. (%)
1. Introductory courses on internet use and general applications (basic word-processing, spreadsheets, presentations, databases, etc.	Yes	178 (58%)	141 (44.3%)
	No	129 (42%)	177 (55.7)
2. Advanced courses on applications (advanced word-processing, complex relational databases, Virtual Learning Environment, etc.)	Yes	83 (27%)	185 (58.2%)
	No	224 (73%)	133 (41.8%)
3. Advanced courses on internet use (creating websites/home page, video conferencing, etc.)	Yes	93 (30.3%)	186 (58.5%)
	No	214 (69.7%)	132 (41.5%)
4. Equipment-specific training (interactive whiteboard, laptop, tablet, etc.)	Yes	126 (41%)	158 (49.7)
	No	181 (59%)	160 (50.3)
5. Courses on the pedagogical use of technologies in learning	Yes	135 (44%)	133 (41.8)
	No	172 (56%)	185 (58.2%)
6. Subject-specific training on learning applications (tutorials, simulations, etc.)	Yes	90 (29.3%)	172 (54.1%)
	No	217 (70.7%)	146 (45.9%)
7. Course on multimedia (using digital video, audio equipment, etc.)	Yes	138 (45%)	168 (52.8%)
	No	169 (55%)	150 (47.2%)
8. Participate in online communities (e.g., mailing lists, groups, blogs) for educational discussions with other language learners/teachers.	Yes	175 (57%)	120 (37.7%)
	No	132 (43%)	198 (62.3%)
9. CALL training provided by school staff Personal learning about technology in your own time	Yes	91 (29.6%)	173 (54.4%)
	No	216 (70.4%)	145 (45.6%)
10. Other professional courses related to CALL	Yes	84 (27.4%)	166 (52.2%)
	No	223 (72.6%)	152 (47.8%)

Furthermore, Table 6 illustrated that 198 teachers (62.3%) have not participated in online communities for educational discussions with other language teachers. On the other hand, only 120 of 318 teachers (37.7%) have attendee in such communities.

Based on the self-evaluation of competency in terms of the use of CALL tools, many students were competent to use mobile phones, social networking sites and applications, interactive whiteboards, computers, discussion forums, PowerPoint software, CD/DVD players, and video projectors for language learning, respectively (Table 7). Nonetheless, the researchers would like to propose the language students to improve their proficiency in using overheads, weblogs, tape-recorders/videocassette recorders, image-editing software and Google Docs. The findings of this research question are in line with Tafazoli (2015), who conducted a cross-cultural study on the most and the least frequent CALL tools among language students. He claimed that Internet, mobile phones, social networking sites are the most frequent CALL tools in English classroom. However, Tafazoli's (2015) study opposed to the result that interactive whiteboards (6.51%) are frequent among CALL tools in English classroom.

Table 7. *Descriptive statistics of CALL tools for both students and teachers*

How well do you cope with using the following technologies for language learning/teaching?	Response	Students	Teachers
		Freq. (%)	Freq. (%)
Tape-recorder/ Videocassette recorder	Not used	109 (35.5%)	89 (28%)
	Poorly	82 (26.7%)	18 (5.7%)
	Moderately well	29 (9.4%)	36 11.3%)
	Well	30 (9.8%)	52 (16.4%)
	Very well	57 (18.6)	123 (38.7%)
CD/DVD player	Not used	54 (17.6%)	42 (13.2%)
	Poorly	105 (34.2%)	13 (4.1%)
	Moderately well	27 (8.8%)	22 (6.9%)
	Well	49 (16%)	66 (20.8%)
	Very well	72 (23.5%)	175 (55%)
Computer	Not used	38 (12.4)	2 (0.6%)
	Poorly	97 (31.6%)	10 (3.1%)
	Moderately well	22 (7.2%)	16 (5%)
	Well	50 (16.3%)	70 (22%)
	Very well	100 (32.6%)	220 (69.2%)
Image-editing software (Photoshop, Paint, etc.)	Not used	83 (27%)	53 (16.7%)
	Poorly	110 (35.8%)	53 (16.7%)
	Moderately well	42 (13.7%)	78 (24.5%)
	Well	34 (11.1%)	82 (25.8%)
	Very well	38 (12.4%)	52 (16.4%)
Overheads	Not used	107 (34.9%)	95 (29.9%)
	Poorly	107 (34.9%)	34 (10.7%)
	Moderately well	43 (14%)	38 (11.9%)
	Well	27 (8.8%)	63 (19.8%)
	Very well	23 (7.5%)	88 (27.7%)
Video projector	Not used	54 (17.6%)	37 (11.6%)
	Poorly	113 (36.8%)	21 (6.6%)
	Moderately well	45 (14.7%)	35 (11%)
	Well	40 (13%)	89 (28%)
	Very well	55 (17.9%)	136 (42.8%)
Weblogs	Not used	90 (29.3%)	88 (27.7%)
	Poorly	106 (34.5)	40 (12.6%)
	Moderately well	43 (14%)	63 (19.8%)
	Well	32 (10.4%)	57 (17.9%)
	Very well	36 (11.7%)	70 (22%)
PowerPoint Software	Not used	68 (22.1%)	13 (4.1%)
	Poorly	83 (27%)	21 (6.6%)
	Moderately well	30 (9.8%)	28 (8.8%)
	Well	47 (15.3%)	67 (21.1%)
	Very well	79 (25.7%)	189 (59.4%)
	Not used	79 (25.7%)	72 (22.6%)

Excel Software	Poorly	124 (40.4%)	38 (11.9%)
	Moderately well	50 (16.3%)	68 (21.4%)
	Well	31 (10.1%)	64 (20.1%)
	Very well	23 (7.5%)	76 (23.9%)
Google Docs	Not used	52 (16.9%)	51 (16%)
	Poorly	114 (37.1%)	28 (8.8%)
	Moderately well	50 (16.3%)	46 (14.5%)
	Well	44 (14.3%)	70 (22%)
	Very well	47 (7.5%)	123 (38.7%)
Discussion forums	Not used	66 (21.5%)	60 (18.9%)
	Poorly	53 (17.3%)	31 (9.7%)
	Moderately well	61 (19.9%)	47 (14.8%)
	Well	56 (18.2%)	75 (23.6%)
	Very well	71 (23.1%)	105 (33%)
Social Networking Sites and Applications	Not used	24 (7.8%)	41 (12.9%)
	Poorly	41 (13.4%)	25 (7.9%)
	Moderately well	49 (37.1%)	45 (14.2%)
	Well	80 (26.1%)	78(24.5%)
	Very well	113 (36.8%)	129 (40.6%)
Interactive whiteboards	Not used	69 (22.5%)	121 (38.1%)
	Poorly	39 (12.7%)	41 (12.9%)
	Moderately well	43 (14%)	37 (11.6%)
	Well	62 (20.2%)	58 (18.2%)
	Very well	94 (30.6%)	61 (19.2%)
Mobile phones	Not used	33 (10.7%)	20 (6.3%)
	Poorly	35 (11.4%)	20 (6.3%)
	Moderately well	42 (13.7%)	34 (10.7%)
	Well	63 (20.5%)	71 (22.3%)
	Very well	134 (43.6%)	173 (54.4%)

From the teachers' perspective, Table 7 indicated that teachers were more competent in computers, PowerPoint software, mobile phones, CD/DVD players, video projectors, social networking sites and applications, Google Docs, tape-recorders/ videocassette recorders and discussion forums, respectively. Moreover, teachers' self-evaluation reported that they are less proficient in Excel software, image-editing software, weblogs, overheads, and interactive whiteboards. The findings are consistent with Golshan and Tafazoli's (2014) study that computer and video projector are among the most applied CALL tools in teaching English. These authors indicated that of all the participants (N=32), 50.99% used computer and video projector, 18.18% applied websites, and 12.65% utilized mobile phones for teaching EFL to Iranian students.

As shown in Table 8, the majority of the students were not proficient in all the items except using applications to prepare presentations for lessons, creating your own digital learning materials, downloading/uploading/browsing material from the school's website or a learning platform, and programming. Among all of the items, students reported that they were least competent in using ICT to get feedback and/or assess their learning.

Table 8. *Descriptive statistics of CALL in action for language students*

How well do you do the followings?	Response	Freq. (%)
Browse/search the Internet to collect information and resources	Not used	109 (35.5%)
	Poorly	82 (26.7%)
	Moderately well	29 (9.4%)
	Well	30 (9.8%)
	Very well	57 (18.6)
Use applications to prepare presentations for lessons	Not used	54 (17.6%)
	Poorly	105 (34.2%)
	Moderately well	27 (8.8%)
	Well	49 (16%)
	Very well	72 (23.5%)
	Not used	38 (12.4)
	Poorly	97 (31.6%)

Create your own digital learning materials	Moderately well	22 (7.2%)
	Well	50 (16.3%)
	Very well	100 (32.6%)
Post homework on the school website	Not used	83 (27%)
	Poorly	110 (35.8%)
	Moderately well	42 (13.7%)
	Well	34 (11.1%)
	Very well	38 (12.4%)
Use ICTs to get feedback and/or assess your learning	Not used	107 (34.9%)
	Poorly	107 (34.9%)
	Moderately well	43 (14%)
	Well	27 (8.8%)
	Very well	23 (7.5%)
Evaluate digital learning resources	Not used	54 (17.6%)
	Poorly	113 (36.8%)
	Moderately well	45 (14.7%)
	Well	40 (13%)
	Very well	55 (17.9%)
Communicate online with your teachers and classmates	Not used	90 (29.3%)
	Poorly	106 (34.5)
	Moderately well	43 (14%)
	Well	32 (10.4%)
	Very well	36 (11.7%)
Download/upload/browse material from the school's website or a learning platform	Not used	68 (22.1%)
	Poorly	83 (27%)
	Moderately well	30 (9.8%)
	Well	47 (15.3%)
	Very well	79 (25.7%)
Look for online language learning courses	Not used	79 (25.7%)
	Poorly	124 (40.4%)
	Moderately well	50 (16.3%)
	Well	31 (10.1%)
	Very well	23 (7.5%)
Participate in social networks	Not used	52 (16.9%)
	Poorly	114 (37.1%)
	Moderately well	50 (16.3%)
	Well	44 (14.3%)
	Very well	47 (7.5%)
Behave safely and ethically online	Not used	66 (21.5%)
	Poorly	53 (17.3%)
	Moderately well	61 (19.9%)
	Well	56 (18.2%)
	Very well	71 (23.1%)
Programming	Not used	24 (7.8%)
	Poorly	41 (13.4%)
	Moderately well	49 (37.1%)
	Well	80 (26.1%)
	Very well	113 (36.8%)

The ability of teachers in using CALL was quite different in comparison to students. As indicated in Table 9, more than 90% of the teachers were capable of browsing/searching the Internet to collect information and resources to prepare lessons. In addition, about 90% of them were able to use applications to prepare presentations for lessons. A little above 80% of the teachers were competent in looking for online professional development opportunities and participating in social networks. However, around 70% of the teachers demonstrated that they are not proficient in programming.

Table 9. *Descriptive statistics of CALL in action for language teachers*

How well do you do the followings?	Response	Freq. (%)
Browse/search the Internet to collect information and	Not used	3 (0.9%)
	Poorly	7 (2.2%)

resources to prepare lessons	Moderately well	24 (7.5%)
	Well	52 (16.4%)
	Very well	232 (73%)
Use applications to prepare presentations for lessons	Not used	14 (4.4%)
	Poorly	15 (4.7%)
	Moderately well	50 (15.7%)
	Well	75 (23.6%)
	Very well	164 (51.6%)
Create your own digital learning materials for students	Not used	31 (9.7%)
	Poorly	37 (11.6%)
	Moderately well	78 (24.5%)
	Well	65 (20.4%)
	Very well	107 (33.6%)
Post homework for students on the school website	Not used	95 (29.9%)
	Poorly	29 (9.1%)
	Moderately well	34 (10.7%)
	Well	61 (19.2%)
	Very well	99 (31.1%)
Use ICTs to provide feedback and/or assess students' learning	Not used	103 (32.4%)
	Poorly	31 (9.7%)
	Moderately well	58 (18.2%)
	Well	55 (17.3%)
	Very well	71 (22.3%)
Evaluate digital learning resources in the subject(s) you teach	Not used	82 (25.8%)
	Poorly	29 (9.1%)
	Moderately well	64 (20.1%)
	Well	68 (21.4%)
	Very well	75 (23.6%)
Communicate online with parents and students	Not used	59 (18.6%)
	Poorly	17 (5.3%)
	Moderately well	49 (15.4%)
	Well	60 (18.9%)
	Very well	133 (41.8%)
Look for online professional development opportunities	Not used	27 (8.5%)
	Poorly	21 (6.6%)
	Moderately well	47 (14.8%)
	Well	75 (23.6%)
	Very well	148 (46.5%)
Participate in social networks	Not used	21 (6.6%)
	Poorly	20 (6.3%)
	Moderately well	63 (19.8%)
	Well	69 (21.7%)
	Very well	145 (45.6%)
Teach students how to behave safely and ethically online	Not used	59 (18.6%)
	Poorly	32 (10.1%)
	Moderately well	59 (18.6%)
	Well	80 (25.2%)
	Very well	88 (27.7%)
Programming	Not used	159 (50%)
	Poorly	57 (17.9%)
	Moderately well	49 (15.4%)
	Well	27 (8.5%)
	Very well	26 (8.2%)

The next section of the CALL literacy questionnaires asked several questions to find out to what extent both students and teachers are proficient in using different software, applications and programs for language learning and teaching. As depicted in Table 10, on the one hand, teachers reported their competency in using word processors. Moreover, they should be more competent in utilizing programs for special needs. On the other hand, however, students claimed that they are more proficient in applying pronunciation programs, and they should boost their competency in spelling and language testing programs. However, both students and teachers reported that they are capable enough of using electronic dictionaries. Son, Robb and Charismiadji (2011) reported that approximate half of the teachers assessed themselves as a basic or an

intermediate user of general computer applications while over 46% of them disclose that they have do not have skills for using spreadsheet, database or Web design applications, Web search engines and communication applications.

Table 10. *Descriptive statistics of software/applications/programs for both students and teachers*

How well do you use the following software/ applications/ programs?	Response	Students	Teachers
		Freq. (%)	Freq. (%)
Word-processors	Not used	46 (15%)	33 (10.4%)
	Poorly	62 (20.2%)	21 (6.6%)
	Moderately well	72 (23.5%)	35 (11%)
	Well	70 (22.8%)	56 (17.6%)
	Very well	57 (18.6%)	173 (54.4%)
Story writing programs	Not used	80 (26.1%)	152 (47.8%)
	Poorly	49 (16%)	32 (10.1%)
	Moderately well	59 (19.2%)	59 (18.6%)
	Well	65 (21.2%)	34 (10.7%)
	Very well	54 (17.6%)	41 (12.9%)
Electronic dictionaries	Not used	74 (24.1%)	15 (4.7%)
	Poorly	61 (19.9%)	11 (3.5%)
	Moderately well	70 (22.8%)	28 (8.8%)
	Well	61 (19.9%)	57 (17.9%)
	Very well	41 (13.4%)	207 (65.1%)
Educational games	Not used	66 (21.5%)	58 (18.2%)
	Poorly	66 (21.5%)	30 (9.4%)
	Moderately well	80 (26.1%)	62 (19.5%)
	Well	58 (18.9%)	79 (24.8%)
	Very well	37 (12.1%)	89 (28%)
Talking books	Not used	25 (8.1%)	126 (39.6%)
	Poorly	38 (12.4%)	29 (9.1%)
	Moderately well	50 (16.3%)	55 (17.3%)
	Well	84 (27.4%)	55 (17.3%)
	Very well	110 (35.8%)	53 (16.7%)
Programs for special needs	Not used	28 (9.1%)	143 (45%)
	Poorly	33 (10.7%)	48 (15.1%)
	Moderately well	54 (17.6%)	65 (20.4%)
	Well	68 (22.1%)	37 (11.6%)
	Very well	124 (40.4%)	25 (7.9%)
Grammar exercise programs	Not used	31 (10.1%)	46 (14.5)
	Poorly	40 (13%)	23 (7.2%)
	Moderately well	58 (18.9%)	63 (19.8%)
	Well	76 (24.8%)	79 (24.8%)
	Very well	102 (33.2%)	107 (33.6%)
Pronunciation programs	Not used	20 (6.5%)	46 (14.5)
	Poorly	34 (11.1%)	19 (6%)
	Moderately well	50 (16.3%)	82 (25.8%)
	Well	79 (25.7%)	74 (23.3%)
	Very well	124 (40.4%	97 (30.5%)
Vocabulary programs	Not used	20 (6.5%)	37 (11.6%)
	Poorly	36 (11.7%)	14 (4.4%)
	Moderately well	46 (15%)	65 (20.4%)
	Well	93 (30.3%)	89 (28%)
	Very well	112 (36.5%)	113 (35.5%)
Spelling programs	Not used	93 (30.3%)	72 (22.6%)
	Poorly	59 (19.2%)	23 (7.2%)
	Moderately well	71 (23.1%)	61 (19.2%)
	Well	52 (16.9%)	72 (22.6%)
	Very well	32 (10.4%)	90 (28.3%)
Cross-curricular programs	Not used	36 (11.7%)	120 (37.7%)
	Poorly	33 (10.7%)	28 (8.8%)
	Moderately well	67 (21.8%)	70 (22%)
	Well	82 (26.7%)	47 (14.8%)

	Very well	89 (29%)	53 (16.7%)
Language testing programs	Not used	97 (31.6%)	71 (22.3%)
	Poorly	69 (22.5%)	21 (6.6%)
	Moderately well	77 (25.1%)	73 (23%)
	Well	36 (11.7%)	68 (21.4%)
	Very well	28 (9.1%)	85 (26.7%)

Moreover, in terms of the use of computer applications, Son, Robb and Charismiadji (2011) stated that the use of word processors, email, Web and multimedia programs are more tendentious among English language teachers, while the integration of other types of applications such as databases, graphics, concordancers, blogs, wikis, online discussion groups, voice chatting and video conferencing programs are infrequent.

In the final section, eight items of the questionnaires dealt with students' and teachers' competency in applying different technologies in order to improve their language skills and components. In items regarding language skills (Table 11), descriptive statistics showed that students were more capable in improving their reading skill through technology. Furthermore, students were not enough proficient in enhancing their listening skill through technology. Teachers' statistics showed a conflict between teachers' and students' self-evaluation regarding applications of CALL for improving language skills in which teachers claimed that they are most proficient in improving students' listening via CALL, which is in contrast to students' report. Moreover, teachers were least competent in boosting students' writing skill through technology.

Table 11. *Descriptive statistics of CALL and language skills and components for both students and teachers*

To what extent are you able to improve the followings with technology?	Response	Students	Teachers
		Freq. (%)	Freq. (%)
Reading	Very poor	7 (2.3%)	6 (1.9%)
	Poor	18 (5.9%)	18 (5.7%)
	Fair	49 (16%)	85 (26.7%)
	Good	73 (23.8%)	112 (35.2%)
	Very good	160 (52.1%)	97 (30.5%)
Writing	Very poor	45 (14.7%)	14 (4.4%)
	Poor	55 (17.9%)	34 (10.7%)
	Fair	76 (24.8%)	89 (28%)
	Good	71 (23.1%)	93 (29.2%)
	Very good	60 (19.5%)	88 (27.7%)
Speaking	Very poor	82 (26.7%)	6 (1.9%)
	Poor	56 (18.2%)	25 (7.9%)
	Fair	74 (24.1%)	70 (22%)
	Good	55 (17.9%)	111 (34.9%)
	Very good	40 (13%)	106 (33.3%)
Listening	Very poor	77 (25.1%)	2 (0.6%)
	Poor	56 (18.2%)	9 (2.8%)
	Fair	91 (29.6%)	51 (16%)
	Good	48 (15.6%)	94 (29.6%)
	Very good	35 (11.4%)	162 (50.9%)
Grammar	Very poor	32 (10.4%)	7 (2.2%)
	Poor	40 (13%)	19 (6%)
	Fair	80 (26.1%)	85 (26.7%)
	Good	81 (26.4%)	112 (35.2%)
	Very good	74 (24.1%)	95 (29.9%)
Vocabulary	Very poor	28 (9.1%)	4 (1.3%)
	Poor	40 (13%)	13 (4.1%)
	Fair	83 (27%)	58 (18.2%)
	Good	71 (23.1%)	116 (36.5%)
	Very good	85 (27.7%)	127 (39.9%)
Pronunciation	Very poor	19 (6.2%)	5 (1.6%)
	Poor	28 (9.1%)	25 (7.9%)
	Fair	72 (23.5%)	73 (23%)

	Good	89 (29%)	98 (30.8%)
	Very good	99 (32.2%)	117 (36.8%)
Cross-cultural awareness	Very poor	33 (10.7%)	20 (6.3%)
	Poor	44 (14.3%)	23 (7.2%)
	Fair	67 (21.8%)	70 (22%)
	Good	80 (26.1%)	106 (33.3%)
	Very good	83 (27%)	99 (31.1%)

Furthermore, Table 11 illustrated that students' ability to augment their language components through technology were to some extent equal (around 50%), but pronunciation was a little higher with about 10% more than others. These findings were identical to teachers' results. However, vocabulary is higher, with about 10% more than other language components. In general, most teachers considered their level of computer literacy, Internet literacy and typing skills as adequate or higher.

RQ2: Is there any significant difference among the language students' CALL literacy in terms of nationality?
In order to find the answer, an independent sample of *t*-test was applied to find out if there is any statistical significant difference among language students' CALL literacy in terms of nationality.

Table 12. *Differences among students' CALL literacy in terms of their nationality*

	Country	N	Mean	Std. Deviation	Sig.	t	df
CALL literacy	Iran	213	148.9014	25.21707	.718	-3.931	305
	Spain	94	161.0319	24.22984			

As depicted in Table 12, the calculated value the significance level is ($p = 0.718$, $p > 0.05$). The finding of this research question could be indicated that Iranian and Spanish students have the same CALL literacy.

RQ3: Is there any significant difference among the language teachers' CALL literacy in terms of nationality?
Another independent sample of *t*-test was carried out to investigate if there is any statistical significant difference among Spanish and Iranian language teachers' CALL literacy in terms of nationality.

Table 13. *Differences among teachers' CALL literacy in terms of their nationality*

	Country	N	Mean	Std. Deviation	Sig.	t	df
CALL literacy	Iran	162	171.2222	37.9289	.001	-2.657	79
	Spain	156	181.5576	30.9280			

As depicted in Table 13, the results outline significant differences between Iranian and Spanish teachers' CALL literacy in terms of their nationality in favor of language teachers in Spain. The calculated value of the significance level is ($p = 0.01$, $p > 0.05$).

RQ4: Is there any significant difference among Spanish and Iranian language students' CALL literacy in terms of their age?
To ascertain if there is any significant difference between the students' CALL literacy with regard to their age, frequency, means and standard deviations for the students' age groups (i.e. 18-23, 24-29, 30-35 and 36 and above) are computed as shown in Table 14 and Table 15.

Table 14. *Frequency of students' age groups*

Age Groups	Frequency	Percent	Valid Percent	Cumulative Percent
18-23	99	32.2	32.2	32.2

24-29	71	23.1	23.1	55. 4
30-35	64	20.8	20.8	76.2
36 and above	73	23.8	23.8	100.0
Total	307	100.0	100.0	

Table 15. *Mean and standard deviation for students' attitudes in terms of their age*

	N	Mean	Std. Deviation
Age Groups	307	2.36	1.164

Furthermore, a one-way analysis of variance (ANOVA) was implemented to explore if there are any statistical significant differences between the mean scores. As displayed in Table 16, results demonstrated that there is no statistical significant differences ($p = 0.325$, $p > 0.05$) between the students' CALL literacy with regard to their age and the computed of F value is (.972).

Table 16. *ANOVA results for students' CALL literacy in terms of their age*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	632.276	1	632.276	.972	.325
Within Groups	198374.369	306	650.408		
Total	199006.306	307			

RQ5: Is there any significant difference among the Spanish and Iranian language teachers' CALL literacy in terms of their age?

To discover if there is any significant difference among the teachers' CALL literacy with regard to their age, frequency, means and standard deviations for the teachers' age groups (i.e. 18-23, 24-29, 30-35, and 36 and above) are computed as shown in Table 17 and 18.

Table 17. *Frequency of teachers' age groups*

Age Groups	Frequency	Percent	Valid Percent	Cumulative Percent
18-23	8	2.5	2.5	2.5
24-29	45	14.2	14.2	16.7
30-35	95	29.9	29.9	46.5
36 and above	170	53.5	53.5	100.0
Total	318	100.0	100.0	

Table 18. *Mean and standard deviation for teachers' CALL literacy in terms of their age*

	N	Mean	Std. Deviation
Age Groups	318	3.34	.813

Furthermore, a one-way analysis of variance (ANOVA) was implemented to explore if there are any statistical significant differences between the mean scores. As displayed in Table 19, results demonstrated that there is no statistical significant difference ($p = 0.309$, $p > 0.05$) between the students' CALL literacy with regard to their age and the computed of F value is (1.2035).

Table 19. *ANOVA results for students' attitudes in terms of their age*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	4415.1545	3	1471.7181	1.2035	.309
Within Groups	383954.6473	314	1222.7855		

Total	388369.8018	317			

RQ6: Is there any significant difference among the Spanish and Iranian language students' CALL literacy in terms of their educational level?

The researchers used an independent samples *t*-test in order to find out if there is any statistical significant difference among the students' CALL literacy with regard to their educational level (BA, MA, and PhD). As illustrated in Table 20, results demonstrated that the there is a statistical significant difference among students' CALL literacy in terms of their educational level ($p = 0.015$, $p > 0.05$).

Table 20. *ANOVA results for students' CALL literacy in terms of their educational level*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	5456.438	2	2728.219	4.285	.015
Within Groups	193550.207	305	636.678		
Total	199006.645	307			

To delve into this matter further, the researchers decided to perform the Tukey test as the *post-hoc* analysis. The Tukey test, as illustrated in Table 21, reports two significant differences.

Table 21. *Post-hoc Tukey test for students' CALL literacy on educational level variable*

(I) Academic Degree	(J) Academic Degree	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
BA	MA	-7.3837	3.10484	.047	-14.6963	-0.0709
	PhD	-10.6141	4.4665	.047	-21.1340	-0.0942
MA	BA	7.3836	3.1048	.047	0.0709	14.6963
	PhD	-3.2305	4.5549	.758	-13.9585	7.4975
PhD	BA	10.6141	4.4665	.047	.0943	21.1340
	MA	3.2305	4.55493	.758	-7.4975	13.9585

There was a significant difference between the CALL literacy of BA, MA and that of PhD ($p = 0.047$, $p > 0.05$). No other difference was reported between any other educational groups. We can interpret the findings that MA and PhD students are more literate in CALL than BA students.

RQ7: Is there any significant difference among the Spanish and Iranian language teachers' CALL literacy in terms of their educational level?

A one-way analysis of variance (ANOVA) was executed to investigate if there are any statistical significant differences between the teachers' CALL literacy in terms of their educational level. As demonstrated in Table 22, results revealed that there is no statistical significant differences ($p = 0.156$, $p > 0.05$) between the teachers' CALL literacy with regard to their educational level.

Table 22. *ANOVA results for teachers' CALL literacy in terms of their educational level*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	4550.5368	2	2275.2684	1.867	.156
Within Groups	383819.2650	315	1218.4738		
Total	388369.8018	317			

6. Conclusion

Several issues might influence on the results of the study, which is based on a self-evaluation that is totally different from actual competency of the participants. Among them, unfamiliarity of the participants with

technical vocabulary rooted in computer science like spreadsheet, vodcast, etc., the limited number of choices in the questionnaires (the participants might use robots and any other high-tech technologies not considered in the study), participants' attitudes towards CALL, and limitations in the size of the participants (it is crystal clear that the findings cannot be used to predict the CALL literacy of all language teachers and students in Iran and Spain). By considering these limitations, the findings showed that among teachers there is no significant difference between CALL literacy and their age and educational level. However, the findings revealed that there is a significant relationship between CALL literacy and nationality of language teachers in favor of Spanish teachers. Furthermore, from students' perspectives, the findings were the same for language students, except regarding their educational level in which MA and PhD students are more literate in CALL than BA students.

This study provided useful results and findings for language teachers, material developers and decision makers. Language teachers and material developers should consider students' CALL literacy regarding their demographic properties for integrating technology in their instructions. In particular, as the findings suggest, educational level of the students should be a critical factor in determining the applied type and content of the instructional technology. In other words, the content and the type of chosen CALL tools and materials should be distinguished in different programs of BA, MA and PhD. Regarding policy makers, using developed countries' CALL materials, such as Spain, in the curriculum of developing countries like Iran is not appropriate based on the teachers' CALL Literacy. Although, Tafazoli, Gómez and Huertas's (2018) study was on the computer literacy of the Iranian and non-Iranian English language students, they confirmed, "it is not possible to apply all the CALL materials produced in other cultures and contexts in our [refers to Iran] context. Therefore, we [refers to Iranian decision makers] have to select the best CALL materials based on our students' computer literacy" (p. 60).

Once again, we would like to declare that it should be considered that self-evaluation CALL literacy might not be equivalent to actual levels of CALL literacy for using a wide range of applications in language teaching and learning. We have to take into account three main components - computer literacy, language teaching/learning literacy, and language literacy - which shape the main core of CALL literacy. These components, all together, will shape the CALL literacy of an individual. To explain more, an expert in computer science or a competent user of technology cannot be a good language teacher or learner if s/he has no proficiency in language and language teaching/learning literacies. All of these components are interwoven, and they act as a unit and integrated literacy.

We would like to suggest further research on actual level of CALL literacy of language teachers and students. Moreover, although design and propose a new framework/model of CALL literacy could be a demanding task, this framework/model might add a new field of research interest among scholars in applied linguistics, computer assisted language learning, language teaching and learning, education, and even computer sciences.

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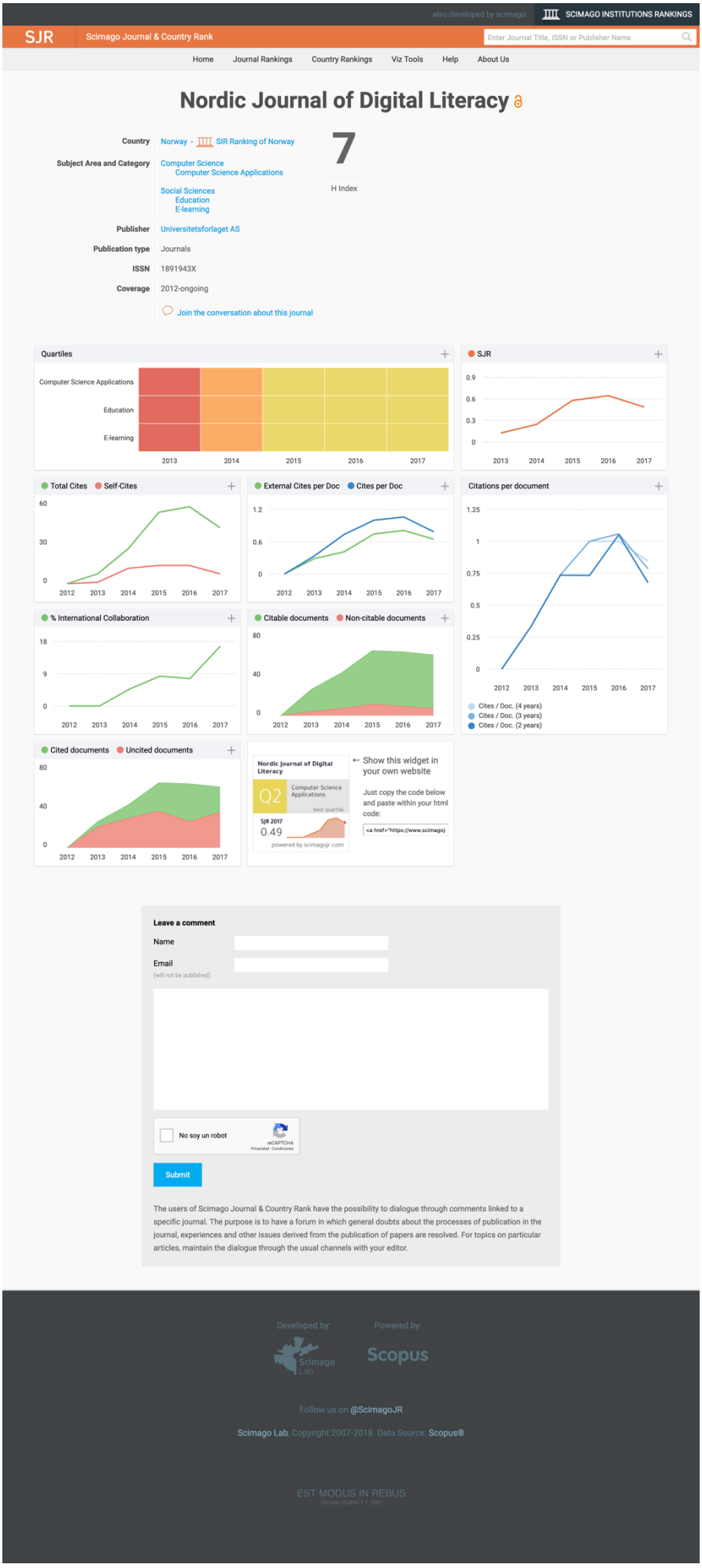
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10. Conclusions

CONCLUSIONS

This study started with a deep review of the literature on Computer-Assisted Language Learning (CALL). After that, the main goal of this study was not only to assess CALL literacy of Iranian and Spanish language teachers and students, but also to compare their attitudes towards CALL. On the whole, it aimed to know if there were differences between Iranian and Spanish English language students' and teachers' on CALL literacy and their attitudes towards CALL.

The research tried to find the answer for the six research questions mentioned on the Introduction section.

Research Question 1

RQ1. Are there any differences between Iranian and Spanish English language students and teachers' CALL literacy?

Only 38.86% of the students have taken CALL courses. Among the participants, 58% of them have participated in introductory courses on internet use and general application. Moreover, although 29.3% of them have participated in subject-specific training on learning application courses, the majority of them (70.7%) have not attended the aforementioned mentioned courses. Furthermore, 198 teachers (62.3%) have not participated in online communities for educational discussions with other language teachers, and only 120 out of 318 teachers (37.7%) have attended such communities.

Based on the results obtained by self-evaluation of competency in terms of the use of CALL tools, we can state that students were in general competent to use mobile phones, social networking sites and applications, interactive whiteboards, computers, discussion forums, PowerPoint software, CD/DVD players, and video projectors for language learning, respectively.

Nonetheless, the researchers would like to propose the language students to improve their proficiency in using overheads, weblogs, audio and video recorders, image-editing software and G Suite (which includes Google Docs, Google Sheets, Google Slides, Google Forms, and Google Sites).

The findings of this research question are in line with Tafazoli (2015), who conducted a cross-cultural study on the most and the least frequent CALL tools among language students. He claimed that Internet, mobile phones, and social networking sites are the most frequent CALL tools in English classroom. However, Tafazoli's (2015) study opposed to the result that interactive whiteboards (6.51%) are frequent among CALL tools in English classrooms.

From the participant teachers' perspective of the current study, they were more competent in computers, PowerPoint software, mobile phones, CD/DVD players, video projectors, social networking sites and applications, word processors, audio or video recorders and discussion forums, respectively. Moreover, teachers' self-evaluation reported that they are less proficient in spreadsheet software (Excel / Google Sheets), image-editing software, weblogs, overheads, and interactive whiteboards. The findings are consistent with Golshan and Tafazoli's (2014) study that computer and video projector are among the most applied CALL tools in teaching English. These authors indicated that out of all the participants in their study (N=32), 50.99% used computer and video projector, 18.18% applied websites, and 12.65% utilized mobile phones for teaching EFL to Iranian students.

The majority of the students were not proficient in all the items, except in using applications to prepare presentations for lessons, creating their own digital learning materials, downloading/uploading/browsing material from the school's website or a learning platform, and programming. Among all the items, students reported that they were less competent in using ICT to get feedback and/or assess their learning.

The ability of teachers in using CALL was quite different in comparison to students. More than 90% of the teachers were capable of browsing/searching the Internet to collect information and resources to prepare lessons. In addition, about 90% of them were able to use applications to prepare presentations for lessons. A little above 80% of the teachers were competent in looking for online professional development opportunities and participating in social networks, and around 70% of the teachers demonstrated that they are not proficient in programming.

Regarding both students and teachers proficiency in using different software, applications and programs for language learning and teaching, on the one hand, teachers reported their competency in using word processors. Moreover, they demonstrated to be more competent in utilizing programs for special needs. On the other hand, however, students claimed that they are more proficient in applying pronunciation programs, and they should boost their competency in spelling and language testing programs. However, both students and teachers reported that they are capable enough of using electronic dictionaries. Son, Robb, and Charismiadji (2011) reported that approximate half of the teachers assessed themselves as basic or intermediate users of general computer applications, while over 46% of them disclose that they have do not have skills for using spreadsheet, database or web design applications, web search engines and communication applications.

Moreover, in terms of the use of computer applications, Son et al. (2011) stated that the use of word processors, email, Web and multimedia programs are more tendentious among English language teachers, while the integration of other types of applications such as databases, graphics, concordancers, blogs, wikis, online discussion groups, voice chatting and video conferencing programs are infrequent.

In the final section, regarding students' and teachers' competency in applying different technologies in order to improve their language skills and components, descriptive

statistics showed that students were more capable of improving their reading skill through technology. In this context, students were not proficient enough in enhancing their listening skills through technology. Teachers' and students' self-evaluation results showed a conflict regarding applications of CALL for improving language skills: teachers claimed that they are most proficient in improving students' listening via CALL, which is in contrast to students' report. Moreover, teachers were less competent in boosting students' writing skill through technology.

Furthermore, students' ability to augment their language components through technology was to some extent equal (around 50%), but pronunciation was a little higher with about 10% more than other components. These findings were identical to teachers' results. However, data from vocabulary are higher, with about 10% more than other language components. In general, most teachers considered their level of computer literacy, Internet literacy and typing skills as adequate or higher than average.

In order to find the answer, an independent sample of t-test was applied to find out if there is any statistical significant difference among language students' CALL literacy in terms of nationality. The calculated value of the significance level is ($p = 0.718$, $p > 0.05$). The finding of this research question could indicate that Iranian and Spanish students have the same CALL literacy.

Another independent sample of t-test was carried out to investigate if there is any statistical significant difference among Spanish and Iranian language teachers' CALL literacy in terms of nationality. The results outline significant differences between Iranian and Spanish teachers' CALL literacy in terms of their nationality favor language teachers in Spain. The calculated value of the significance level is ($p = 0.01$, $p > 0.05$).

Research Question 2

RQ2. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL?

Based on the findings of the study, different perceptions were reported by language students in Iran and Spain. Language students in Iran highlighted some key factors more than Spanish students: (1) helping students to learn more efficient and effectively; (2) providing real communication with native speakers through CALL; and (3) decreasing students' anxiety and stress are more critical than other factors.

However, for Spanish students providing immediate, unbiased and constant feedback through CALL has more weight in comparison to the Iranian perception. It should be noted that there are some strengths for Iranian students such as: (1) CALL enhances students' self-confidence; (2) students can monitor their progress through CALL; and (3) CALL meets different learning styles, where researchers could not find any track among Spanish students' responses.

Data analysis also revealed in the opportunities category advantages such as: (1) CALL is fun, interesting, and joyful; (2) learning with CALL is convenient and comfortable; (3) CALL is accessible and available; (4) working with CALL is fast; and (5) CALL is modern and up-to-date were more common among Iranians than among Spanish students.

In this context, however, more students in Spain than in Iran perceive that CALL is flexible. More surprisingly, only Iranian students believed that CALL is accurate and precise.

Some contradictions between Iranian and Spanish language students were observed regarding negative perceptions towards CALL. On the one hand, many Iranian students complained about their lack of CALL/computer/technology literacy. On the other hand, Spanish students focused more on the distracting function of CALL. Even more, none of the Spanish language students reported the confusion caused by the variety of CALL materials for learners, and the lack of confidence in using CALL, though Iranians did.

However, only Spanish students stated that CALL does not address all students' learning styles.

Finally, regarding the threats category, more Iranian than Spanish participating students complained about technical issues of CALL. In addition, only Iranian students declared the followings as threats for implementing CALL: (1) CALL is expensive; (2) CALL is boring; (3) CALL is not available; (4) CALL does not provide enough guidelines for the users; (5) teachers' lack of CALL/computer/technology literacy; and (6) CALL is not reliable. In opposite, only Spanish students believed that CALL is complex and not user-friendly.

Research Question 3

RQ3. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL based on gender?

In order to find an answer to this query, an independent sample of *t*-test was applied to find out if there is any statistical significant difference among Spanish and Iranian language students' attitudes towards the use of CALL in terms of gender. The findings indicated that the mean values for both male and female students do not show any significant differences among Iranian and Spanish students' attitudes towards CALL in terms of their gender. The calculated value of t is (.294) and the significance level is ($p = 0.476$, $p > 0.05$).

The finding of this research question could mean that both male and female students have the same attitudes towards CALL, which emphasizes the positive role of CALL in sexual justice in educational system of both contexts, Iran and Spain.

The findings of this research question are in line with other studies such as Al-Emran, Elsherif, and Shaalan (2016), Cavus (2011), Tafazoli, Gómez, and Huertas (2018), Uzunboylu, Cavus, and Ercag (2009), and Wang, Wu, and Wang (2009); and in contrast to Fatemi Jahromi, and Salimi (2013), Khaddage, and Knezek (2013), Öz (2015), Taleb, and Sohrabi (2012), and Uzunboylu, and Ozdamli (2011).

Research Question 4

RQ4. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL based on education level?

The researchers used an independent sample *t*-test in order to find out if there was any statistical significant difference among the students' attitudes towards CALL with regard to their educational level (BA, MA, and PhD). The results demonstrated that the there is a statistical significant difference among students' attitudes in terms of their educational level. To delve into this matter further, the researchers decided to perform the Tukey test (Abdi, & Williams, 2010) as post-hoc analysis, which did not report any significant difference among the attitudes of different educational level towards CALL.

Tafazoli, Gómez, and Huertas's (2018) study on the attitudes of students towards CALL showed a significant difference in terms of students' educational level. However, their Scheffe post-hoc analysis in different constructs of their study (except computer literacy) approved the findings of the current study.

Research Question 5

RQ5. Are there any differences between Iranian and Spanish English language students' attitudes towards CALL based on age?

To ascertain if there was any significant difference between the students' attitudes towards CALL with regard to their age, frequency, means and standard deviations for the students' age groups (i.e. 18-23, 24-29, 30-35 and 36 and above) were computed. Furthermore, a one-way analysis of variance (ANOVA) was implemented to explore if there were any statistical significant differences between the mean scores. The results demonstrated that there was no statistical significant difference between students' attitudes with regard to their age.

Although Öz (2015) believed that there is a statistical difference between students' attitudes towards CALL based on their age, our findings for this question are consistent with Al-Emran, Elsherif, and Shaalan (2016), and Tafazoli, Gómez, and Huertas (2018), who found no differences related to age.

Research Question 6

RQ6. Is there any relationship between Iranian and Spanish English language students and teachers' CALL literacy and attitudes towards CALL?

The participating language students in Iran and Spain counted common strengths for CALL. According to their reports: (1) CALL provides a wide range of tools, resources and materials; (2) CALL helps students to learn more efficient and effectively; (3) CALL improves language learning; (4) CALL provides real communication with native speakers; (5) CALL decreases students' anxiety and stress; (6) CALL provides immediate, unbiased and constant feedback; (7) CALL makes students autonomous; (8) CALL increases peer interactions; (9) CALL provides authentic materials; (10) CALL increases students' motivation; (11) CALL facilitates learning; and (12) CALL boosts personalized learning.

Furthermore, participating students described some features of CALL. They believed that CALL is: (1) fun, interesting, and joyful; (2) accessible and available; (3) flexible; (4) modern and up-to-date; (5) interactive; (6) attractive; and (7) user-friendly.

In addition, Iranian and Spanish students acknowledge some more opportunities provided by CALL: (1) learning with CALL is convenient and comfortable; (2) working with CALL is fast; (3) it offers ubiquitous learning; and (4) working with CALL can save time, money, and energy.

On the opposite side, many students reported some weaknesses of CALL: (1) students' lack of CALL/computer/technology literacy; (2) CALL distracts students; (3) CALL decreases face-to-face interactions; (4) CALL does not provide concise feedback; and (5) CALL makes students more dependent on technology.

Finally, some barriers were identified by students regarding the implementation of CALL: (1) technical issues; (2) technology break-down; (3) lack of facilities and infrastructure; (4) it can be time-consuming; (5) it can have some negative health effects, such as eyestrain; (6) sometimes bad or low quality content can be found; and (7) it can hinder the role of teachers. Participating language teachers in Iran and Spain claimed that one of the most significant features of CALL is to provide rich and authentic environment, materials and communication. Authentic environment is an expedient criterion for effective learning (Hwang, Ma, Shadiev, Shih, & Chen, 2016).

Another positive facet of CALL is that technology increases teachers' and students' creativity and innovation. According to Eggen and Kauchak (2007), creativity is a skill to make, refine or use a new way to solve problem that this ability needs prior knowledge (Simonton, & Ting, 2010). Hwang, Lai, and Wang (2015) stated that "students' creativity and imagination ability can be improved by engaging in a creative project, such as developing a website or an innovative artwork, by searching for relevant information on

the Internet, making observations in the field, and participating in brainstorming in class or on their mobile devices" (p. 460).

Moreover, participating language teachers stated that by using CALL in their classes they have more control on students' learning process. In addition, teachers highlighted 'anywhere and anytime' features of the CALL and m-learning, which leads to variation in teachers and students' behavior (Geddes, 2004). Also, Wang, and Shih (2015) affirmed "mobile-mediated learning could offer opportunities for learning to occur anytime and anywhere, and create an efficient, flexible and motivating condition for autonomous learning" (p. 374).

Teachers also expressed that CALL offers opportunities for personalized teaching and learning (it is called 'personalized' because each language student learns at their own pace [Basal, 2015]). In other words, as Parsons, and Beauchamp (2012) stated, learners allowed to "progress through the material at different speeds according to their learning needs. Some students take longer to finish a topic, might skip topics that cover information they already know, or might repeat topics if they need more help" (p. 220).

Furthermore, teachers added that by utilizing technology in their classes, they could cover the four language skills: reading, listening, speaking and writing. In addition, technology-based tools and programs could act as complements to their teaching.

Increasing the interest and motivation of students via CALL is another positive factor which is stated by other scholars such as González-Gómez, Guardiola, Rodríguez, and Alonso (2012), and Yilmaz (2017). Keller (1983, as cited in Yilmaz, 2017, p. 253) defined motivation as "a concept which affect the direction and magnitude of a behavior and which affects the efforts occurring as a result of the behavior". Motivation could be assumed as the most significant component of instructional design (Keller, 1979) which has a substantial effect on students' attitudes (Golshan, & Tafazoli, 2014; Tafazoli,

Gómez, & Huertas, 2018), and learning behaviors in educational environments (Fairchild, Jeanne-Horst, Finney, & Barron, 2005).

Variety and versatility of materials, contents, and tools provided by CALL in the teaching process are reported by many teachers as well. Evseeva, and Solozhenko (2015) confirmed that technologies such as Learning Management System (LMS) (in general) and Moodle (in particular) are providing "a variety of tools for studying and communication" for teachers and learners (p. 208). Moreover, a variety of facilities and capabilities of social networking sites may be applied to enhance students' linguistic skills (Akbari, Pilot, & Simons, 2015). Godwin-Jones (2011) also asserts that mobile applications such as ChinesePod, Conjugation Nation, among others offer a variety of opportunities for language learners to work with and improve their language skills.

Assisting learners to engage in learning is a critical challenge for language teachers in instructional environments. Learner engagement through active participation is a substantial element for learning that has many profits to students (Berman, 2014; Lippmann, 2013). As reported by teachers, CALL could increase student engagement in both inside- and outside-of-the-classroom language activities, which is confirmed by research regarding the role of innovative instructional practices effects on student engagement in technology-mediated learning contexts (e.g., Chen, Lambert, & Guidry, 2010; Denker, 2013; Diemer, Fernandez, & Streepey, 2012; Jones, Crandall, Vogler, & Robinson, 2013; Junco, Heiberger, & Loken, 2011; Liang, & Sedig, 2010; Mango, 2015). Teachers' report was in line with Henrie, Halverson & Graham's (2015) definition of learner engagement. They considered "learner engagement" as an umbrella term that includes learning both inside and outside the academic setting, whereas student engagement would concentrate only on formal academic contexts. The researchers proved that since technology as an educational tool provides an undeniable source of interactive tools and applications, at the same time that it can facilitate peer and student-

teacher interactions (Arkorful, & Abaidoo, 2015), it may also promote engagement (Junco, 2012; Rashid, & Asghar, 2016; White, & Robertson, 2015; Williams, Karousou, & Mackness, 2011).

Language teachers noted that CALL could foster independent learning, as reported by Sung, Chang, and Liu (2016). The aim of education, from a constructivist perspective, is to nurture independent and self-directed learners. Chen, Kao, and Sheu (2005) declared that "independent learning can assist students in acquiring the knowledge, abilities, skills, values, and motivation that will enable them to analyze learning situations and develop appropriate strategies for action" (pp. 2-3). In other words, by applying technology, we will cultivate more independent learners who could acquire knowledge and information more independently and easily, and can broaden their own learning capabilities.

A fundamental component of the assessment for learning approach is the feedback provided to students (Stobart, 2008), which is also considered as one of the most powerful means to improve student learning (Hattie, & Gan, 2011). The teachers in the study notified that CALL gives learners instant and individualized feedback. Computer-based assessments have the capacity of providing timely feedback. According to Hattie and Timperley (2007), provided feedback in computer-based assessments can serve to instantly bridge the gap between students' current level in the learning process and the expected learning outcomes. This means that computer-based assessments could help teachers in providing instant and individualized feedback, which is in line with both participants' claim and previous research in the field (e.g. Li, Link, & Hegelheimer, 2015; Mokhtarnia, & Tafazoli, 2013; Muis, Ranellucci, Trevors, & Duffy, 2015; Tafazoli, Nosratzadeh, & Hosseini, 2014).

Based on the information-processing model of Second Language Acquisition (SLA), learners need to pay attention to input in order to receive it as intake that finally may be "integrated in the learners' interlanguage system" (de la Fuente, 2014, p. 261). Hence,

providing learners with attention-focusing environment and/or tasks may play a vital role in assisting the progress of language learning. According to our participants' statements, CALL keeps students' attention, focus and noticing. By referring to Schmidt's (1990, 1995) noticing hypothesis, "attention controls access to awareness and it is responsible for conscious noticing, which is the necessary condition for the conversion of input to intake" (Schmidt, 1995, p. 209). Benefiting from attention and noticing of language learners is at the core of many studies regarding the implementation of CALL in language education (de la Fuente, 2014; Kukulska-Hulme & Bull, 2009; Oberg & Daniels, 2012; Verdugo & Belmonte, 2007), which supports language teachers' claim in this study.

There is no doubt that increasing students' autonomy is one of the major purposes of educational systems in different countries. Lai, Yeung, and Hu (2015) even go further by stating that a fundamental educational aim is to support learners to become autonomous learners who actively apply technologies to build their own personalized learning spaces, which surely supports the claim of language teachers who argued that CALL increases learners' autonomy. Despite the various definitions of learner autonomy, it is widely agreed that autonomy refers to "the degree of choice that students have when they perform academic tasks, as well as the degree of choice they have regarding when and how to perform them" (Pintrich, & Schunk, 1996 as cited in Akbari et al., 2015, p. 127).

Regarding the use of technology for learning, autonomy consists of two major dimensions: (1) the ability dimension, which includes self-regulation skills and the skills of locating, selecting and effectively using technology for language learning (Lai, 2013); (2) the willingness dimension which entails a flexible mindset to deal with the uncertainties and complexity of interacting with technology" (Kop, & Fournier, 2011), a proactive approach to following chances to learn and applying the language, "the perceived usefulness of technology for language learning and the perceived educational compatibility of technology with language learning needs and preferences" (Lai et al.,

2016, p. 2). The weight of learners' autonomy out of the classroom is on the shoulder of technological tools and resources (Lai, 2014; Lai, Zhu & Gong, 2014; Reinders & White, 2011). However, it would be one of the responsibility of the teachers to assist their students to promote the required attitudes and competencies to get involved in the autonomous use of technology out of the classroom (Reinders & Darasawang, 2012; Toffoli & Sockett, 2015).

Finally, language teachers in Iran and Spain also stated that by implementing CALL in their classrooms they are able to: (1) reach students' different learning styles; (2) stimulate students' curiosity; (3) increase students' willingness to learn; (4) make students active; (5) breaks down students' inhibitions; and (6) provide more input and different types of input.

In contrast, teachers counted some negative facets of CALL. Among the mentioned drawbacks of CALL, teachers' lack of CALL / computer / digital literacy / competence should be considered as the most significant one, according to the frequency of teachers' responses and the significance of issue itself. Although many studies concentrated on the concepts of computer and digital literacies or competences (Ilomäki, Paavola, Lakkala, & Kantosalo, 2014; Liu, & Kleinssaser, 2015; Røkenes, & Krumsvik, 2016; Tafazoli, Gómez, & Huertas, 2017), and its importance in teacher education (Arnold, Ducate, & Lomicka (2007), none of the previous research dealt with the critical concept of CALL literacy. Tafazoli in a workshop celebrated in 2017 defined CALL literacy as "the ability to use technology at an adequate level for teaching or learning a language". Considering product end-users, CALL literacy should be another role of educational scholars and teacher educators. We can state, then, that the increase of the number of CALL literate students and teachers will have a positive effect on the number of appropriate applications there will be to use CALL.

Participants, teachers and students, argued the unavailability of resources and the lack of standardized CALL materials, which is also mentioned by Sadaf, Newby Ertmer (2016). In addition to this, they complained about the bad content of some websites and unreliability of some available educational contents.

Teachers also reported that implementing CALL might lead to students' confusion and distraction which supports the previous study by Montrieux, Vanderlinde, Schellens, and De Marez (2015). This might be due to students' use of other unrelated tools such as games in the classroom.

Many of teachers' negative attitudes and perceptions were in line with a previous study by Laabidi and Laabidi (2016): (1) time consumption and teachers' lack of time during the lesson; (2) fear of technology breaking down/failure/malfunction/crashing or glitches; (3) teachers' lack of confidence in using CALL; and (4) technical issues.

Furthermore, some of the participants stated that: (1) by implementing CALL, teachers have lower control on students' performance; (2) CALL cannot stand alone; and (3) feedback provided by CALL is not always precise.

Teachers and students also complained about the old equipment and lack of appropriate infrastructure within their schools due to their expenses and maintenances (Chouit, Nfissi, & Laabidi, 2017). It is quite interesting to find out that some teachers have their own personal worries: some of them argued that implementing CALL needs too much work; CALL is complicated and overwhelming (Arkorful, & Abaidoo, 2015). In addition, some of the participating teachers have had their own concerns about future careers as they think that CALL may replace teachers, which could lead to low job offers in a near future.

Pedagogical Implications of the Findings

According to the findings of this study, gender, age and education level had no relationship to the attitudes of language students towards CALL. These findings may

indicate that most language students understand the critical role of CALL in their professional and daily lives. Designing, developing and applying CALL materials and tools in language educational settings is inevitable, and the new trend of language teaching and learning through technology among students (which this study has documented) is to use these materials and tools extensively.

This study provided useful results and findings for language teachers, material developers and decision makers.

In this light, language teachers and material developers should consider students' CALL literacy regarding their demographic properties for integrating technology in their instructions. In particular, as the findings suggest, the educational level of the students should be a critical factor in determining the applied type and content of the instructional technology. In other words, the content and the type of chosen CALL tools and materials should be distinguished in different programs of BA, MA and PhD. Regarding policy makers, using developed countries' CALL materials (such as Spain) in the curriculum of developing countries (e.g. Iran) is not appropriate based on teachers' CALL literacy. Although, Tafazoli et al.'s (2018) study was on the computer literacy of the Iranian and non-Iranian English language students, they confirmed that "it is not possible to apply all the CALL materials produced in other cultures and contexts in our [refers to Iran] context. Therefore, we [it refers to Iranian decision makers] have to select the best CALL materials based on our students' computer literacy" (p. 60).

Once again, we would like to declare that self-evaluation of CALL literacy might not be equivalent to an actual level of CALL literacy for using a wide range of applications in language teaching and learning. We have to take into account the three main components – computer/digital literacy/competence, language teaching/learning literacy, and language literacy – which shape the main core of CALL literacy, which at the same time will shape CALL literacy of an individual. Our data suggest that an expert in computer

science or a competent user of technology cannot be a good language teacher or learner if s/he has no proficiency in language and language teaching/learning literacies. All of these components are interwoven, and they act as a unit and integrated literacy.

The effective implementation of CALL in language teaching and learning is impeded by several distinctive factors. Based on the findings of the present study, a number of beneficial actions related to CALL implementation in language education can be drawn:

(1) To run more CALL teacher education programs in order to enhance teachers' CALL literacy.

(2) To improve teachers' cognitive dimension in order to overcome psychological problems such as lack of confidence, being nervous, etc.

(3) To provide students and teachers with standardized CALL materials.

(4) To encourage faculties to increase their technological equipment, facilities and infrastructures.

(5) Governments and their education departments/bodies should provide economical facilities for educational institutions to improve educational equipment and infrastructures.

(6) Institutions must provide proper evaluation to integrate ICT into teaching.

(7) To enhance students' CALL literacy by holding extracurricular courses.

(8) To encourage language teachers to implement CALL in their classroom.

(9) To run more obligatory or voluntarily CALL programs in order to enhance students' CALL literacy.

(10) To implement specific actions to help students overcome anxiety, stress, etc.

Suggestions for Further Research

We would like to suggest further research to measure the level of CALL literacy of language teachers and students. Moreover, although the design and a new model of CALL literacy could be a demanding task, this framework might add a new field of research among scholars in related areas, such as applied linguistics, language teaching and learning, education, and even computer sciences.

This study has emphasized the role of demographic features on how language teachers and students appreciate the use of CALL in educational contexts. We would like to suggest some action research-based studies, as we believe our results may not be appropriate to all CALL-related contexts. The success of CALL in other contexts, from Eastern to Western countries, may lead to different results. Hence, we recommend further research into investigating what specifically second and foreign language teachers and students need to integrating CALL into specific language environments.

Limitations of the Study

Like any other research in the field, this study has its own limitations. One limitation of this study was that it relied on participants' self-evaluation and self-reporting of their abilities and proficiencies. As the questionnaire survey was the main instrument of data collection, therefore, the researchers trusted on the sincerity and reliability of the participants' responses (both language teachers and students) when they completed their surveys. Moreover, along with the open-ended items in order to collect qualitative data, it would be better to conduct the interview sessions with the participants. However, due to the number of participants and the cross-cultural nature of the study (communication difficulties), the researchers were restricted to using the questionnaire surveys.

Another limitation relates to population representation. The number of participants might affect the generalizability of the study in these two countries (Iran and Spain). Finally, another limitation of the study is the lack of previous cross-cultural research between

Spain and Iran that could be used as a baseline for reference; considering this, the researchers had to refer to literature from various cultural contexts.

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Annexes: Other publications

Annex 1: Cross-Cultural Perspectives on Technology-Enhanced Language Learning

Cross-Cultural Perspectives on Technology-Enhanced Language Learning

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students' work, using English as a vehicular language. Among the principal outcomes, the participants were satisfied with learning about cultural issues from a different country and with discovering new things about their own heritage. They also accepted the potential of visual art and cross-curricular work as a powerful tool to learn about culture and to practice their language skills.

Section 3
Telecollaboration for Cross-Cultural Communication

Although asynchronous communication tools have traditionally been used in online interactions, recently increasing popularity has been noted in the application of synchronous communication tools to facilitate intercultural learning. This chapter will explore and report on a study of how students from two countries, Spain and Finland, developed intercultural competence through the use of a video-conferencing platform, Adobe Connect, as a learning context. English was the lingua franca and the exchange of information was aimed at helping the students to learn about different aspects of each other's culture to develop intercultural competence. The findings suggest that the students' attitude to their learning experience was positive, since they were curious to explore each other's cultural traits. Videoconferencing was considered an effective tool because it enabled them to share experiences and build up a relationship, thereby enhancing their knowledge of both cultures. Body language also encouraged interaction since they could see each other via videoconferencing.

Technology-enhanced language learning has broadened the horizons of collaboration in the L2 classroom. At the same time, it has brought the cultural component closer, enriching the overall picture for students when learning a foreign language. This highlights the need for students to develop solid cross-cultural skills regarding the meaning negotiation processes underlying the discursive practices of their respective L2 communities. Only by acknowledging the referential, semiological nature of language and understanding cultural practices in situated terms may students be truly socialized in their L2. This study explores the perception of students regarding wiki-based collaborative writing as a resource in the L2 classroom while paying special attention to the treatment of culture specific elements that may hinder effective cross-cultural communication in their L2.

This chapter reports a Spanish-American telecollaborative project through which students created blogs, VoiceThread presentations, and video chats for intercultural exchanges over the course of one semester. The chapter outlines the methodology for the project including pedagogical objectives, task design,

<u>Annex 2:</u> A cross-cultural study on the attitudes of English language students towards computer-assisted language learning

A CROSS-CULTURAL STUDY ON THE ATTITUDES OF ENGLISH LANGUAGE STUDENTS TOWARDS COMPUTER-ASSISTED LANGUAGE LEARNING

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Abstract

The purpose of this study was to compare the attitude of Iranian and non-Iranian English language students' attitudes towards Computer-Assisted Language Learning (CALL). Furthermore, the relations of gender, education level, and age to their attitude are investigated. A convergent mixed methods design was used for analyzing both quantitative and qualitative data. In the data collection procedure, an online 44-item web-based questionnaire was applied in order to collect data from 415 students. In the data analysis phase, both descriptive and non-parametric analyses were performed. The findings of the study revealed that there is no difference between the attitudes of Iranian and non-Iranian towards CALL. Finally, pedagogical implications and recommendations for further research are presented.

Keywords: CALL; cross-cultural attitudes

1. Introduction

Technological development has affected our careers, as well as our personal and social lives. Both teachers and material designers are aware of combining technology and curriculum development. Many years ago, language learning with the aid of administrating technology-based application was quite problematic, but nowadays teachers who are not able to apply technological tools in their classrooms can be considered as out-of-date teachers (Chapelle, 2008). There are many new golden opportunities for language learning by applying computer-mediated programs (Doughty & Long, 2003). Computer-Assisted Language Learning (CALL) utilizes some modern methods such as communicative language teaching, task-based learning, process approaches to improve learners' autonomy, and control during language learning procedure (Warschauer, 1996). Learners' independency and flexibility in language learning and teaching are the key purposes of any language association and institute. To accomplish these goals, ICT, cell phones or computers, are applied to end time, space and condition learning restrictions.

In a large number of studies, CALL and different aspects of its programs are evaluated. CALL includes three types of research: software, learning task, and learners (Chapelle, 2003). Based on previous studies, most of the research focuses on the first two types of CALL, where a shortage of investigation is identified regarding the learner, who is the final user of this process. The final goal of CALL is not using various technological programs and tools in the classroom, but rather to facilitate language learning by providing a suitable setting. Therefore, another role of educational scholars and researchers is to perceive learners' beliefs and reflection on CALL programs and tools. Learners' positive attitudes toward e-learning and CALL will encourage them to use it more frequently (Liaw, 2002). Cross-cultural dimension in studies of the learners' attitudes toward CALL has been missed in the related literature since almost all of previous research is examined within a specific culture and society.

Stigler and Hiebert (1999) argued that methods gathered from comparative education research study can provide some educational improvement. The type of comparative study which examines two or more different societies and cultures is called a cross-cultural study; this research is effective to analyze psychological traits (Matsumoto & Yoo, 2006). The compatibility of the product with two different societies and cultures is another viewpoint which focuses on the significance of cross-cultural studies. According to these researchers' belief, utilizing the findings of other societies and cultures does not lead to the same result in the target context. In Western and Eastern countries, extensive research examined the usefulness of CALL, but the results cannot be extrapolated to the Iranian culture. Although attitude has the same status and the result of the study may present either positive or negative aspects of this phenomenon, administrating it to the Iranian belief, perception and facilities may lead to different findings. This research tries to make the comparison between Iranian and non-Iranian English learners' attitude towards CALL. The final purpose of this study is to find out the most and the least frequent CALL tools in the English classrooms.

The achievement of students determines their attitudes towards CALL (Lacina, 2004; Warschauer, Knoebel & Stone, 2004). In Chapelle and Jamieson's (1986) study, those students who worked harder at learning English had more positive attitudes towards CALL; therefore, they spent more time on that. One of the aims of Chen's (2013) study was to investigate the attitude of Chinese students towards tablet-based Mobile Assisted Language Learning (MALL). The researchers applied Davis's (1993) Technology Acceptance Model (TAM), to develop a questionnaire on attitude. The aim of this survey was to assess students' perceptions of usability, effectiveness, and satisfaction with tablets for language learning during four

weeks. This survey consists of 30 statements on a 5-point Likert scale which was administered to the participants. The data analysis revealed that, based on participants' attitude, tablet computers were easy to use, effective for the purpose of language learning, and that the participants were satisfied with MALL.

If the final goal is to get students adopt computers for lifelong learning, we have to consider their attitudes towards this technology (Almahboub, 2000). According to Loyd and Gressard (1984) those students who show positive attitudes towards CALL are more eager to use computer technology. Therefore, it is possible to consider attitude as an indicator for computer usage tendency.

This research aimed to find the answer for the following questions:

1. Are there any differences between Iranian and non-Iranian English language students' attitudes towards CALL?
2. How is gender related to the attitudes of Iranian and non-Iranian English language students towards CALL?
3. How is the level of education related to the attitudes of Iranian and non-Iranian English language students towards CALL?
4. How is age related to the attitudes of Iranian and non-Iranian English language students towards CALL?

2. Review of the literature

Language teachers and learners are provided with a number of opportunities due to the spread of Information and Communication Technology (ICT). In spite of the positive effects of technology, it might entail specific pedagogical adaptations to the classroom level. Consequently, the combination of technology and language is the central part of many language researchers and scholars' jobs.

2.1. Computer and electronic literacy

The meaning of literacy has changed; a person is called literate if they are able to read and write both printed and electronic texts. Based on the time needs, learners must improve their skills in the 21st century. For different activities in our daily lives, such as editing texts and photos, shopping, travelling or studying, computers play an important role. Therefore, some novel literacies such as "computer literacy", "electronic literacy", and "information literacy" are appearing due to the rapid growth of technology. Therefore, how to develop and improve these literacies has become a crucial factor in education (Son, 2004). As Dudeney, Hockly and

Pegrum (2013) mentioned, these skills involve creativity and innovation, critical thinking and problem solving, collaboration and teamwork, autonomy and flexibility and lifelong learning. Another important factor arises, called digital literacy, which is an ability to interpret, manage, share and create meaning in the growing range of digital communication channels.

In the late 1960s, the idea of computer literacy among students emerged. The specific definition of computer literacy is under dispute, so it has evolved along the years. Computer literacy is the ability which helps learners to speak about computer. According to Son, Robb and Charismiadji (2011), it is understood "as the ability to use computers at an adequate level for creation, communication and collaboration in a literate society" (p. 27). Another side of Computer Assisted Learning (CAL) affirms that computers can be the students' teacher. This definition can change for the educational arena. As Son, Robb and Charismiadji (2011) mentioned, it can be considered as "the development of knowledge and skills for using general computer applications, language-specific software programs and Internet tools confidently and competently" (p. 27).

Most computer-related texts and the Internet which are suggested to educators, scholars and students can be integrated into different educational context, where new media must be applied. However, printed materials are still the dominant media. The following text by Reinking (1994) describes the four criteria that activities must have to develop electronic literacy in educational contexts:

> First, they should relate to conventional print-based literacy in meaningful ways […] A second criterion is that activities designed to promote electronic literacy should involve authentic communication and meaningful tasks for students and teachers […] Third, activities should engage students and teachers in higher levels of thinking about the nature of printed and electronic texts as well as about the topics of their reading and writing […] Fourth, activities should engage students and teachers in ways that allow them to develop functional strategies for reading and writing electronic texts
>
> (as cited in Tafazoli, Gómez Parra, & Huertas Abril, 2017, p. 718).

Thus, learners are considered to have specific knowledge on computer literacy. The functional knowledge of computers can assist learners to learn, solve problems, and understand the academic area.

2.2. Computer-Assisted Language Learning (CALL)

Based on Levy's (1997) definition of CALL, it is the research of the application of the computer in language learning and teaching. While the name involves computer, the term

CALL includes any applications of Information and Communication and Technology (ICT) for teaching and learning foreign languages.

Using technology for learning and teaching languages is a new concept, although it is not a new story in the educational field where CALL is framed. Interesting opportunities are provided for teachers and students by CALL, and a few different phases have been identified in language programs within the gradual development of technology for language courses. Each phase is connected to a specific technological and pedagogical level: behavioristic CALL, communicative CALL and integrative CALL (cf. Barson & Debski, 1996; Warschauer, 1996; Warschauer & Healey, 1998), all of which have their own merits and drawbacks.

The merits and barriers for using CALL have been examined by different scholars. Seven different positive effects of CALL were mentioned by Warschauer and Healey (1998): 1) multimodal practice with feedback; 2) individualization in a large class; 3) pair or small group work on projects; 4) the fun factor; 5) variety in the resources available and learning styles used; 6) exploratory learning with large amounts of language data: and 7) real-life skill building in computer use.

In addition, the students will be able to learn how cultural issues can change a person's point of view toward world (Singhal, 1997). Students can have access to other people's work, publish their own work and, by using the Internet, become capable of searching extra language activities (Singhal, 1997). Higher motivation, greater interaction, higher order thinking skills, receiving both positive and negative feedbacks, global understanding, among others are the beneficial points of applying the Internet in language learning process (Lee, 2000). According to AbuSeileek and Abu Sa'aleek (2012), CALL can be practical since language learners can study anytime and anywhere.

Shyamlee and Phil (2012) mentioned that teachers should use technology to provide different approaches to course content. The Department of Education and Early Childhood Development - DEECD (2010) reported that technology changes the class from teacher-centered into student-centered classrooms. Furthermore, technology provides the encouragement of collaboration and communication in learning activities (Gillespie, 2006; Murphy, 2006). Finally, technology has proved to decrease anxiety levels among learners (Chapelle, 2001; Levy, 1997).

On the negative side, the literature has identified some drawbacks:

1) Both teachers and students need training in how to use technology for educational purposes (Baylor & Ritchie, 2002; Han, 2008).

2) Some unsuitable topics and issues may be available to students, which may cause serious problems (Singhal, 1997).
3) The absence of facilities can be a barrier for conducting technology in language classrooms (Corrêa, 2001; Han, 2008).
4) Spending time on the Internet can be fun, though time consuming at times (Cabrini Simões, 2007; Corrêa, 2001).
5) Computers can only do what they are programmed to do, so some students are never interested in learning through technology.
6) Unexpected situations cannot be controlled due to technological barriers (AbuSeileek & Abu Sa'aleek, 2012).
7) Some authors think that teachers should not use technology as abstract thinking should not be replaced by imaginative thinking (Shyamlee & Phil, 2012).
8) Finally, teachers' negative attitude towards technology in a crucial barrier (Fang & Warschauer, 2004; McGrail, 2005).

In recent years, significant investigations have been conducted to introduce different technologies such as mobile, website, weblog, internet, video, and the like (e.g., Belz, 2002; Belz & Thorne, 2006; O'Dowd, 2003; Prensky, 2007; Salaberry, 2001). However, in the field of foreign languages, most investigations have explored only one or two technological tools within a specific context. This study aims to fill a gap in the current research by researching various technologies used in two different contexts within language learning classes.

3. Conceptual framework: The multicomponent model of attitude

Attitude, from a psychological point of view, is the way in which a person expresses either their favor or disfavor towards anything such as a person, place, etc. Although finding a precious definition of attitude is a controversial issue, Eagly & Chaiken (1998) defined attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1). Our evaluation of an attitude could range from extremely positive to extremely negative, at the same time an individual can hold a different attitude from another one towards the same object (Wood, 2000). In Wenden's (1998) view, attitude is a set of "learned motivations, valued beliefs, evaluations, what one believes is acceptable, or responses oriented towards approaching or avoiding" (p. 52). The term "attitude" for Mantle-Bromley refers to "affect and an evaluative, emotional reaction" (Mantle-Bromley, 1995, p. 381). Zimbardo and Leippe (1991) believed that attitude is an evaluative tendency towards an object, which a person possesses based upon cognitions,

affective reactions and behavioral intentions; past behaviors may affect cognitions, affective responses, and future intentions and behaviors.

Based on the multicomponent model of attitude, the construct of attitude contains (1) cognitive; (2) behavioral; and (3) affective components (Fishbein & Ajzen, 1975; Kiesler, Collins & Miller, 1969; Mantle-Bromley, 1995; Mantle-Bromley & Miller, 1991).

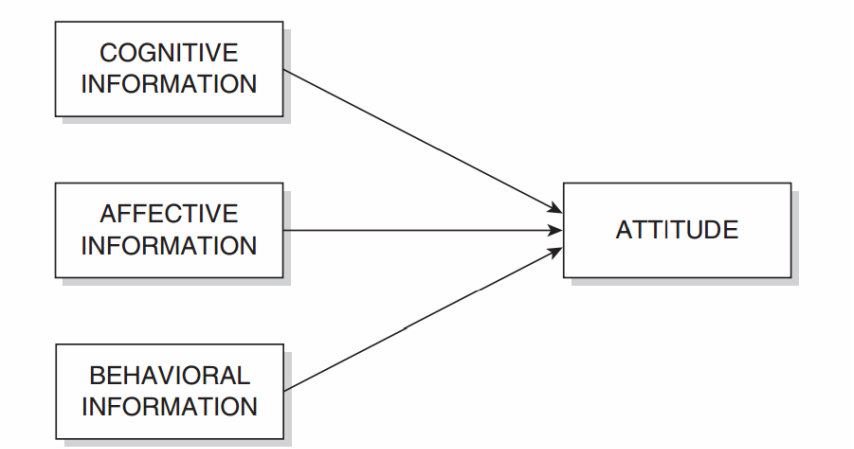

Figure 1. The Multicomponent Model of Attitude

The cognitive component refers to the amount of knowledge a person has on a specific topic. The cognitive component of a language learner regarding CALL would be based on computer literacy (Maushak & Simonson, 2001). The overt performance of a person towards an object is a behavioral component of their attitude. In other words, the behavioral component refers to appreciation or dealings related to attitude. In language learning, for instance, the learners with a positive attitude towards the target language are keen on possessing constructive learning behaviors. Therefore, this learner can get more achievements than a student with a negative attitude (Donato, Antonek & Tucker, 1994; 1996). Such a component of attitude in CALL relates to the experience of the language learner in using computers and/or other technologies for language learning. According to previous research, it could be noticed that the more experience in using computer, the more positive attitudes towards computers and vice versa (Maushak & Simonson, 2001). The affective component refers to an attitude object. The feelings or emotions which are linked to an attitude object shape the affective component. That is, the fact that students considered that CALL tools and devices made their learning less anxious and/or easy to use deals with the affective component of their attitudes. Having said that, Breckler (1984) reported that although the cognitive, behavioral and affective components of attitude are not the same, they are not completely independent. In other words, these components have a synergetic relation. When a

person has a positive belief about an attitude object, they possess both affective and behavioral associations with the object (Breckler, 1984; Breckler & Berman, 1991; Breckler & Wiggins, 1989; 1991).

4. Methodology

4.1. Research Design

This cross-cultural study has used mixed methods research design because both quantitative and qualitative data provide a better understanding of the research. In this design, two different methods were used to obtain triangulated results about a single topic.

The convergent is an efficient design in which both types of data are collected during one phase of the research and at the same time. Moreover, it is possible to collect and analyze each type of data separately and independently.

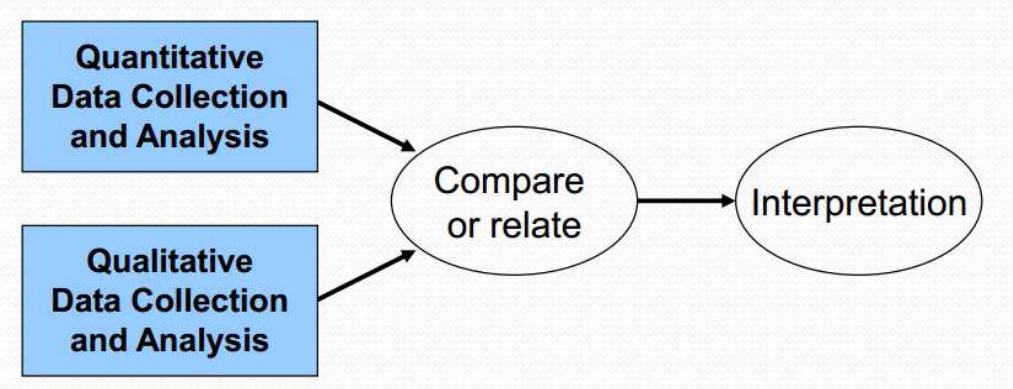

Figure 2. Prototypical version of the convergent parallel design (Creswell & Plano Clark, 2011, p. 69)

4.2. Participants

As shown in Table 1, female was the dominant sex in the sample with over three quarters of the participants (75.2%). Only 103 of the 415 participants of the sample were male.

Table 1. Distribution of different sexes in the sample

	Frequency	Percent	Valid Percent	Cumulative Percent
MALE	103	24.8	24.8	24.8
FEMALE	312	75.2	75.2	100.0
Total	415	100.0	100.0	

Undergraduate and postgraduate learners had almost equal proportion in the sample – 38.1 and 39.3, respectively. The minority group in terms of education level was the graduate learners, who were 94 participants.

Table 2. Distribution of different education levels in the sample

	Frequency	Percent	Valid Percent	Cumulative Percent
UNDERGRADUATE	158	38.1	38.1	38.1
GRADUATE	94	22.7	22.7	60.7
POSTGRADUATE	163	39.3	39.3	100.0
Total	415	100.0	100.0	

Regarding age, as shown in Table 3, the largest category of participants (158 learners) fell within the age range between 18 and 23. The second and third largest groups were those between 24 to 29 years old (27.2%), and that of over 35 (18.3%), respectively. The smallest group in the sample ranged in age between 30 and 35, comprising only 16.4 % of the sample.

Table 3. Distribution of age in the sample

	Frequency	Percent	Valid Percent	Cumulative Percent
Between 18 and 23	158	38.1	38.1	38.1
Between 24 and 29	113	27.2	27.2	65.3
Between 30 and 35	68	16.4	16.4	81.7
Between 36 and above	76	18.3	18.3	100.0
Total	415	100.0	100.0	

Table 4 shows the frequency distribution of the participants by country. Iran, Kuwait, and Japan were the nations with the largest number of participants, with 145, 95, and 17 learners, respectively.

Table 4. Distribution of nationalities in the sample

Country	F	%	Valid %	Cumulative %	Country	F	%	Valid %	Cumulative %
Algeria	5	1.2	1.2	1.2	Korea	1	.2	.2	54.7
Armenia	1	.2	.2	1.4	Kuwait	95	22.9	22.9	77.6
Australia	1	.2	.2	1.7	Laos	1	.2	.2	77.8
Austria	1	.2	.2	1.9	Libya	1	.2	.2	78.1
Azerbaijan	2	.5	.5	2.4	Malaysia	5	1.2	1.2	79.3
Bangladesh	2	.5	.5	2.9	Mexico	6	1.4	1.4	80.7
Belgium	3	.7	.7	3.6	Morocco	6	1.4	1.4	82.2
Bosnia	2	.5	.5	4.1	N Sudan	1	.2	.2	82.4
Brazil	5	1.2	1.2	5.3	Netherlands	1	.2	.2	82.7
Canada	2	.5	.5	5.8	Nigeria	1	.2	.2	82.9
Chile	1	.2	.2	6.0	Pakistan	15	3.6	3.6	86.5
Colombia	2	.5	.5	6.5	Palestine	1	.2	.2	86.7
Cambodia	1	.2	.2	6.7	Philippines	4	1.0	1.0	87.7
Cyprus	1	.2	.2	7.0	Poland	2	.5	.5	88.2
Ecuador	2	.5	.5	7.5	Qatar	2	.5	.5	88.7
Egypt	2	.5	.5	8.0	Romania	2	.5	.5	89.2
France	2	.5	.5	8.4	Russia	3	.7	.7	89.9
Germany	1	.2	.2	8.7	Saudi Arabia	1	.2	.2	90.1
Ghana	1	.2	.2	8.9	Serbia	1	.2	.2	90.4
Greece	2	.5	.5	9.4	Slovakia	3	.7	.7	91.1

India	11	2.7	2.7	12.0	Spain	13	3.1	3.1	94.2
Indonesia	1	.2	.2	12.3	Syria	1	.2	.2	94.5
Iran	145	34.9	34.9	47.2	Thailand	2	.5	.5	94.9
Iraq	4	1.0	1.0	48.2	Turkey	2	.5	.5	95.4
Ireland	2	.5	.5	48.7	UAE	1	.2	.2	95.7
Italy	1	.2	.2	48.9	UK	3	.7	.7	96.4
Japan	17	4.1	4.1	53.0	USA	10	2.4	2.4	98.8
Jordan	4	1.0	1.0	54.0	Venezuela	3	.7	.7	99.5
Kazakhstan	2	.5	.5	54.5	Vietnam	1	.2	.2	99.8
					Yemen	1	.2	.2	100.0
Total	415	100	100						

Overall, Table 5 outlines that 34.7% of the learners in the sample were Iranians, and 65.3% were foreigners. Hence, there were 127 more foreign participants in the sample than the Iranians.

Table 5. Distribution of Iranians and non-Iranians in the sample

	Frequency	Percent	Valid Percent	Cumulative Percent
Iranian	144	34.7	34.7	34.7
Non-Iranian	271	65.3	65.3	100.0
Total	415	100.0	100.0	

4.3. Instrumentation

In order to collect data about the attitudes of English language students, an online five-section questionnaire was administered through Google Forms via the following link: http://bit.ly/2teLmgc. The online questionnaire comprised 48 closed- and open-item questions, distributed into 5 sections (see Table 6 below). The first section of the questionnaire was designed to gather data about participants' demographic information: gender, current studying level, age, continent, and country. The second section aimed to investigate the level of computer literacy of the students through 10 items. The first nine items of this section were "Can you" questions with "Yes and No" options; and the last item was a multiple-choice question about the overall self-evaluation of students about their computer literacy. The third section targeted the students' attitude towards Computer-Assisted Learning (CAL). This section comprised ten 7-point Likert-scale items that ranged from strongly disagree (1) to strongly agree (7). Items 11-13 aimed to gather information about the students' attitudes towards computer; and items 14-19 were designed to measure students' attitude towards their willingness to use computer as a learning medium. The fourth section was designed to explore the students' attitudes towards Computer-Assisted Language Learning (CALL) through 20 Likert-scale items. Items 20-27 dealt only with CALL. Items 28 and 29 aimed to find out students' ideas about computers' feedback. Items 30-32 were about the role of CALL as a facilitator of communication. Item 33 concerned the evaluation of students via

computer. Items 34-40 collected data about students' attitude towards the development of language skills, grammar, vocabulary and cultural awareness via computers. The final part of the questionnaire in the last section consisted of two open-ended items, 41 and 42, which prompted students to give their experience in using English language software or any other related experiences with CALL.

Table 6. Distribution of questions on the questionnaire

Sections	Section I	Section II	Section III	Section IV	Section V
Block	Background information	Computer literacy	Students' attitudes towards CAL	Students' attitudes towards CALL	Open-ended questions
Total	6	10	10	20	2

4.4. Data analysis

This study set out to compare the potential significant difference between the attitude of Iranian and non-Iranian English learners both to computers in general, and to computer-assisted language learning (CALL). Moreover, the potentiality of any statistically significant differences between age, sex, and education level were scrutinized.

5.1. Checking the reliability of the questionnaire

The questionnaire contained 42 questions plus demographic data. It measured three different constructs distributed into three categories. After administering this questionnaire to the sample, the researchers first checked the validity of the case processing. All the 415 cases of the sample were valid, and SPSS did not exclude the scores of any of the learners from the processing. Questions 1 to 10 of the questionnaire measured the construct of computer literacy. The SPSS calculated the Cronbach's Alpha Coefficient of .569 for this construct. That is to say, the first construct of the questionnaire enjoys an acceptable level of reliability. The second construct of the questionnaire was the general attitude of the learners towards the application of computers, and it was measured in questions 11 to 20. The SPSS software calculated the Cronbach's Alpha coefficient for the second construct to be .842. This indicated that the second construct enjoyed ample internal consistency, as well. This construct measured the attitude of the learners toward the application of computers, and it was stretched from question 21 to 40. The Cronbach's Alpha coefficient for this construct was .866, which indicated a high degree of internal consistency. Finally, the researchers calculated the internal consistency of the whole questionnaire, and the Alpha of .912 could be reported for it. Hence,

it could be concluded that not only do each of the three constructs enjoy ample reliability individually, but the whole questionnaire also was highly reliable.

5.2. Checking the validity of the questionnaire

In order to make sure of the validity of the questionnaire, the researchers decided to apply the Factor Analysis Method. Field (2005) proposed that, in general, taking over 300 cases for sampling analysis is probably adequate for the successful administration of factor analysis. Hence, this study, with 450 cases in the sample, met this standard for the administration of factor analysis.

The correlation matrix in the factor analysis reported the determinant of 8.18 and the error of determinant of -8 for the whole questionnaire. Moreover, as depicted in Table 7, the Kaiser-Meyer-Olkin Measure, which measures strength of the relationship among variables, was .895. According to Kaiser and Rice (1974), 0.5 is minimum (barely acceptable) value for KMO, values between 0.7 and 0.8 are acceptable values, and KMO values above 0.9 are considered good. Thus, the KMO value of .895 was optimal.

Table 7. Basic factor analysis tests

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.895
Bartlett's Test of Sphericity	Approx. Chi-Square	6524.740
	Df	780
	Sig.	.000

Table 7 also indicates that the significant level of Bartlett's test of Sphericity, which is another indication of the strength of the relationship among variables, was .000 < .05, which meant that the correlation matrix was not an identity matrix. Hence, the administration of the factor analysis was possible and proper. Additionally, the communalities analysis shows how much of the variance in the variables has been accounted for by the extracted factors. According to the findings, questions 25, 24, and 7 were the questions of which the lowest percentage of variance was accounted for (.374, .399, and .416, respectively). By contrast, the highest ratio of the variance was accounted for in questions 3, 31, and 30 (.781, .755, and .753, respectively). All the other accounted-for variances fell within the range of .374 and .781.

All the factors extractable from the analysis along with their eigenvalues, the percent of variance attributable to each factor, as well as the cumulative variance of the factor and the previous factors. 9 components had the eigenvalues of larger than 1; hence, it could be argued

that factor analysis managed to extract 9 components from this questionnaire. The first component accounted for 25.06% of the variance, whereas the ninth component only accounted for 2.7% of the variance. The remaining 31 factors had the eigenvalues smaller than 1; they, thus, were considered insignificant in the analysis. The majority of the variables (23 of the 40 variables) have been loaded on factor 1. Two of the variables are loaded on factor 2, and the rest of the factors have only one variable loaded on them. For factors 4 and 6, on the contrary, no loaded variables can be reported.

The rotated component matrix has reduced the number factors on which the variables have high loadings to make the interpretation of the analysis easier. As it could be reported, the majority of the variables are loaded on factors 1, 2 and 3. Factor 9, on the other hand, has only one variable loaded.

Overall, it could be concluded from the statistical analyses of this section that the researcher-designed questionnaire enjoyed an ample degree of internal consistency as well as validity, hence it was fully functional to be administered as the main tool for data collection.

4.3. Descriptive statistics

After the questionnaire had been administered to the 415 members of the sample, the papers were scored by the researchers and the quantitative data were imported to SPSS. Initially, the descriptive statistics were calculated. As shown in Table 8, the Skewness ratio for the scores of the whole questionnaire was -8.2, which was far beyond the normal range of ± 1.96. Therefore, the data were not normally distributed and they are regarded as non-parametric. The mean of the whole sample was 157.54, and the standard deviation was 26.64.

Table 8. Descriptive statistics of the questionnaire

	N	Mean	Std. Deviation	Variance	Skewness		
					Statistic	Std. Error	Ratio
Questionnaire	415	157.56	26.64	710.08	-.984	.120	-8.2

In addition, the researchers checked out the descriptive statistics of each construct separately. As Table 9 outlines, the Skewness ratio for all the three constructs (11.07, -10.92, and -05.29) did not fall within the normal distribution range of ± 1.96. As a result, none of the constructs was normally distributed, and the data for each of them were non-parametric. It could also be reported that for computer literacy, the mean was 12.73 and the standard deviation was 1.15. For general attitude to computers, the mean was 51.97 and the standard

deviation was 10.32. And finally, the mean and the standard deviation for attitude toward computers were 92.85 and 18.75, respectively.

Table 9. Descriptive statistics of the three constructs

	N	Mean	Std. Deviation	Variance	Skewness		
					Statistic	Std. Error	Ratio
Computer Literacy	415	12.73	1.15509	1.334	1.329	.120	11.07
CAL Attitude	415	51.97	10.32768	106.661	-1.311	.120	-10.92
CALL Attitude	415	92.85	18.75801	351.863	-.635	.120	-5.29

Except for questions 17, 20, 32, and 33, whose Skewness ratios fell within the normal range, the data for the rest of the questions were not distributed normally.

4.4. Checking the overall differences between the variables

Before checking the research questions individually, the researchers decided to check whether or not there were any statistically significant differences among the data for all the four independent variables (age, sex, level of education, and being/not being Iranian). To do this, the researchers administered the Multivariate Analysis of Variance (MANOVA). As Table 10 shows, all the multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, Roy's Largest Root) depicted a significant difference among the four variables (p= .000, F= 6.22, 43.18, 478.46, and 1445.68, respectively). This means that the four variables had a holistic significant difference regarding the attitude of the sample toward the application of computers.

Table 10. Group effect multivariate tests

Effect		Value	F	Hypothesis df	Error df	Sig.
SEX * LEVEL * AGE * IRANIAN	Pillai's Trace	1.263	6.129	132.000	1113.000	.000
	Wilks' Lambda	.004	43.188	132.000	1106.656	.000
	Hotelling's Trace	171.778	478.463	132.000	1103.000	.000
	Roy's Largest Root	171.456	1445.68	44.000	371.000	.000

The full factorial MANOVA did not report any significant difference for the sex, age, and education level alone. However, it reported a statistically significant difference for the education level variable (p= .044, .044, .043, and .009). Besides, the full factorial MANOVA did not report any other significant difference in any of the analyses involving two or three factors. Nevertheless, only the Roy's Largest Root reported a significant difference for the involvement of the three factors of level, age, and Iranian/non-Iranian (p= .011).

4.5. Checking the research hypotheses

After determining the existence of a statistically significant difference among the four factors by group effect MANOVA, the researchers decided to administer independent statistical tests, and check the research hypotheses one by one.

4.5.1. Checking the first research hypothesis

The first research hypothesis was concerned with being Iranian or non-Iranian, and its influence on English language students' attitudes toward CALL. Since the data for the questionnaire were not normally distributed (Skweness ration= -8.2), the researchers applied the non-parametric test of Mann-Whitney to check this research question. As Table 11 shows, the Asymptotic significant level of the Mann-Whitney test was .180 > .05. Hence, the first research hypothesis of this study was not rejected, which means that there were not any significant differences between the attitudes of Iranian and non-Iranian English language students toward the application of CALL.

Table 11. Mann-Whitney test on Iranian/non-Iranian variable

	Overall
Mann-Whitney U	17952.000
Wilcoxon W	28392.000
Z	-1.341
Asymp. Sig. (2-tailed)	.180

To delve into this matter further, the researchers decided to investigate whether or not there were any significant differences between the attitudes of Iranian and non-Iranian students in every construct. Since the data for all the three constructs were not normally distributed (Skewness ratios= 11.07, -10.92, and -05.29), the researchers opted for the non-parametric test of Mann-Whitney. As Table 12 shows, the Mann-Whitney test revealed that there were significant differences between the computer literacy as well as between the attitudes of Iranian and non-Iranian English students toward CALL (p= .000 and .033, respectively). Thereafter, it could be argued that as far as computer literacy and attitudes toward CALL are concerned, statistically significant differences exist between the data drawn from Iranian and non-Iranian English students. The only construct on which Iranian and non-Iranian students did not report any significant difference was the general attitude toward CAL (p= .343 > .05).

Table 12. Mann-Whitney test on Iranian/non-Iranian variable for the three constructs

	Computer Literacy	CAL Attitude	CALL Attitude
Mann-Whitney U	15285.500	18410.000	17038.500
Wilcoxon W	25725.500	55266.000	27478.500
Z	-3.840	-.948	-2.127
Asymp. Sig. (2-tailed)	.000	.343	.033

In order to investigate the data even further, the researchers administered the Mann-Whitney test for all the 40 items of the questionnaire. The findings revealed that 16 out of 40 questions reported a significant difference between the attitudes of Iranian and non-Iranian English students towards CALL, and 24 questions did not report any difference.

4.5.2. Checking the second research hypothesis

The second research hypothesis was concerned with being male and female, and its influence on English language students' attitudes toward CALL. Since the data for the questionnaire were not normally distributed (Skweness ration= -8.2), the researchers applied the non-parametric test of Mann-Whitney to check this research question. As it could be accessed in Table 13, Mann-Whitney test did not report any significant differences (p= .217 > .05). As a result, the second research hypothesis of this study was not rejected, as no significant difference existed between the attitudes of male and female English language students toward CALL.

Table 13. Mann-Whitney Test on sex variable

	Overall
Mann-Whitney U	14766.500
Wilcoxon W	20122.500
Z	-1.233
Asymp. Sig. (2-tailed)	.217

To delve into this matter further, the researchers decided to investigate whether or not there were any significant differences between the attitudes of male and female students in every construct. Since the data for all the three constructs were not normally distributed (Skewness ratios= 11.07, -10.92, and -05.29), the researchers opted for the non-parametric test of Mann-Whitney. Table 4.20 reports a significant difference between the computer literacy of men and women (p= .027 < .05). However, it does not report any statistically meaningful differences between the attitudes towards CAL and attitudes of male and female students towards CALL (p= .401 and .06, respectively). Hence, it could be concluded that

despite the difference between their computer literacy, male and female English students did not have any significance difference in their attitudes toward CALL.

Table 14. Mann-Whitney test on sex variable for the three constructs

	Computer Literacy	General Attitude	Attitude
Mann-Whitney U	13856.500	15181.500	14079.500
Wilcoxon W	19212.500	64009.500	19435.500
Z	-2.214	-.841	-1.884
Asymp. Sig. (2-tailed)	.027	.401	.060

In order to investigate the data even further, the researchers administered the Mann-Whitney test for all the 40 items of the questionnaire. The results showed that of the 40 questions, only 9 questions reported a significant difference between the attitude of male and female English students toward CALL, whereas in the other 31 questions, no significant differences could be reported.

4.5.3. Checking the third research hypothesis

The third research hypothesis of this study was concerned with education level and its influence on the attitudes of English language learners toward CALL. Since the data for education level variable was not distributed normally (Skewness ratio= -8.2), the researchers selected the non-parametric Kruskal Wallis test for this purpose. As Table 15 depicts, the Asymptotic Significant level of Kruskal Wallis was .566, which is larger than .05, and hence it does not report any significant differences. Accordingly, the third research hypothesis of this study was not rejected, and no significant differences among the attitudes of English students with different education levels toward CALL was reported.

Table 15. Kruskal Wallis test on education level variable

	Overall
Chi-square	1.138
Df	2
Asymp. Sig.	.566

To delve into this matter further, the researchers decided to perform the Scheffe test as the post-hoc analysis. Table 16 reveals that any of the education levels staged a significant difference in the post-hoc analysis (p= .958, .702, and .911). Hence, any of the two groups of learners with different education level reported a significant difference in their attitude toward CALL.

Table 16. Post-hoc Scheffe test on education level variable

(I) LEVEL	(J) LEVEL	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Undergraduate	Graduate	1.01252	3.47	.958	-7.5280	9.5530
	Postgraduate	2.50854	2.971	.702	-4.8114	9.8285
Graduate	Undergraduate	-1.01252	3.47	.958	-9.5530	7.5280
	Postgraduate	1.49602	3.45	.911	-6.9955	9.9875
Postgraduate	Undergraduate	-2.50854	2.97	.702	-9.8285	4.8114
	Graduate	-1.49602	3.45	.911	-9.9875	6.9955

It could be learned from Table 17 that all the English students in the three different education level groups enjoyed means which fell within a homogeneous subset. Besides, the overall significant level of the three groups in the same subset was .751 > .05, which meant no meaningful differences among the groups could be reported.

Table 17. Means for groups in different subsets on education level variable

LEVEL	N	Subset for alpha = 0.05
		1
Postgraduate	163	156.2699
Graduate	94	157.7660
Undergraduate	158	158.7785
Sig.		.751

Moreover, the researchers decided to perform the Kruskal Wallis test on each of the constructs to probe where significant differences among the scores of learners with different education levels could be reported. As Table 18 illustrates, Kruskal Wallis reported significant differences among the attitudes of learners with different education levels in computer literacy as well as in attitude towards CAL (p= .041 and .006, respectively). However, there was no significant difference between the attitudes toward CALL among the English learners of different education levels.

Table 18. Kruskal Wallis test for each construct on education level variable

	Computer Literacy	CAL Attitude	CALL Attitude
Chi-square	6.386	10.290	5.721
df	2	2	2
Asymp. Sig.	.041	.006	.057

To delve into details further, the researchers also applied Scheffe post-hoc analysis to each of the constructs for different levels of education. The results, as outlined in Table 19, depict that for the construct of computer literacy, significant statistical difference only existed between the literacy of undergraduate and postgraduate English students (p= .020). In the

general attitude, however, the only meaningful difference was reported between undergraduate and graduate English students (p= .022). But no significant difference was reported among the three groups in the construct of attitudes.

Table 19. Post-hoc Scheffe test for each construct on education level variable

Dependent Variable	(I) LEVEL	(J) LEVEL	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Computer Literacy	Undergraduate	Graduate	.22825	.14938	.312	-.1387	.5952
		Postgraduate	.35983*	.12803	.020	.0453	.6744
	Graduate	Undergraduate	-.22825	.14938	.312	-.5952	.1387
		Postgraduate	.13158	.14852	.676	-.2333	.4964
	Postgraduate	Undergraduate	-.35983*	.12803	.020	-.6744	-.0453
		Graduate	-.13158	.14852	.676	-.4964	.2333
General Attitude	Undergraduate	Graduate	-3.70172*	1.33466	.022	-6.9805	-.4229
		Postgraduate	-2.36802	1.14391	.119	-5.1782	.4422
	Graduate	Undergraduate	3.70172*	1.33466	.022	.4229	6.9805
		Postgraduate	1.33370	1.32700	.604	-1.9263	4.5937
	Postgraduate	Undergraduate	2.36802	1.14391	.119	-.4422	5.1782
		Graduate	-1.33370	1.32700	.604	-4.5937	1.9263
Attitude	Undergraduate	Graduate	4.48600	2.43257	.184	-1.4900	10.4620
		Postgraduate	4.51674	2.08491	.097	-.6052	9.6387
	Graduate	Undergraduate	-4.48600	2.43257	.184	-10.4620	1.4900
		Postgraduate	.03074	2.41861	1.000	-5.9110	5.9725
	Postgraduate	Undergraduate	-4.51674	2.08491	.097	-9.6387	.6052
		Graduate	-.03074	2.41861	1.000	-5.9725	5.9110

The analysis of the means also outlined no significant difference between the means that fell within the same homogeneous subsets. For the construct of computer literacy, the mean for the graduate students fell within the same subset with the mean of the postgraduate students on the one hand, and fell within the same homogeneous subset with that of the undergraduates on the other hand. This case mirrors for the mean of the postgraduate learners for the construct of general attitude. On the one hand, it falls within the same subset with the mean of the undergraduate group, and on the other hand, it is in the same subset with the mean of the graduate groups. In the construct of attitude, however the means of the three groups fall under the same subset.

Table 20. Means for groups in different subsets for each construct on education level variable

Construct	Computer Literacy		CAL Attitude			CALL Attitude	
LEVEL	Subset for Alpha = 0.05		LEVEL	Subset for Alpha = 0.05		LEVEL	Subset for Alpha = 0.05
	1			1	2		1
Postgraduate	12.57		Undergraduate	50.20		Postgraduate	91.12

Graduate	12.70	12.7	Postgraduate	52.57	52.57	Graduate	91.15
Undergraduate		12.93	Graduate		53.90	Undergraduate	95.64
Sig.	.653	.277		.178	.577		.151

The researchers also administered Kruskal Wallis test for all the 40 questions in the questionnaire in order to investigate which of them report a significant difference among the attitudes of students with different education levels toward CALL, and which of them do not report any difference. As a result, only 16 of the 40 questions reported a significant difference among the attitudes of English students with different education levels toward CALL, and 24 questions revealed no differences.

5.5.4. Checking the fourth research hypothesis

The fourth research hypothesis of this study was concerned with age and its influence on the attitudes of English language learners toward CALL. Since the data for age variable was not distributed normally (Skewness ratio= -8.2), the researchers selected the non-parametric Kruskal Wallis test for this purpose. As Table 4.29 outlines, Kruskal Wallis did not report any significant differences (p= .285 > .05). Hence, the fourth research hypothesis of this study was not rejected, and the data analysis did not depict any statistically significant difference among the attitudes of learners of different age groups toward CALL.

Table 21. Kruskal Wallis test on age variable

	Overall
Chi-square	3.792
Df	3
Asymp. Sig.	.285

To delve into this matter further, the researchers decided to perform the Scheffe test as the post-hoc analysis. The Scheffe test, as illustrated in Table 22, did not report any significant difference among the attitudes of different age groups toward CALL (p= .371, .638, and .977 > .05).

Table 22. Post-Hoc Scheffe test on age variable

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
18-23	24-29	5.81830	3.27	.371	-3.3884	15.0250
	30-35	5.02848	3.86	.638	-5.8098	15.8668
	35 and above	1.67322	3.71	.977	-8.7586	12.1051
24-29	18-23	-5.81830	3.27	.371	-15.0250	3.3884
	30-35	-.78982	4.08	.998	-12.2591	10.6794
	35 and above	-4.14509	3.94	.777	-15.2311	6.9409
30-35	18-23	-5.02848	3.81	.638	-15.8668	5.8098

	24-29	.78982	4.08	.998	-10.6794	12.2591
	35 and above	-3.35526	4.44	.903	-15.8294	9.1188
	18-23	-1.67322	3.71	.977	-12.1051	8.7586
35 and above	24-29	4.14509	3.94	.777	-6.9409	15.2311
	30-35	3.35526	4.44	.903	-9.1188	15.8294

The analysis of the means, as shown in Table 23, reported no significant differences (p= .529 > .05). It also conveyed that the means of all the age groups fell within a homogeneous subset.

Table 23. Means for groups in different subsets on age variable

LEVEL	N	Subset for Alpha = 0.05 1
24-29	113	154.4602
30-35	68	155.2500
35 and above	76	158.6053
18-23	158	160.2785
Sig.		.529

Moreover, the researchers decided to perform the Kruskal Wallis test on each of the constructs to probe where significant differences among the scores of learners of different age groups could be reported. According to the results, as shown in Table 24, significant differences could be reported among the attitudes of English students in different age groups toward CALL for the construct of computer literacy as well as for the construct of attitude towards CALL (p= .003 and .019 < .05, respectively). However, the attitude towards CAL did not report any significant differences (p= .116 > .05).

Table 24. Kruskal Wallis test for each construct on age variable

	Computer Literacy	CAL Attitude	CALL Attitude
Chi-square	13.964	5.909	9.969
df	3	3	3
Asymp. Sig.	.003	.116	.019

In the post-hoc analysis of each construct through Scheffe test, only two significant differences could be reported. There was a significant difference between the computer literacy of 24-29 age group and that of 18-23 (p= .003 < .05). Similarly, there was a difference between the attitudes of the same two age groups toward CALL. No other difference was reported between any other two groups in any other constructs.

The analysis of the means in the post-hoc test, also, did not reveal any differences between the means of any two groups. In the construct of general attitude as well as in the construct of attitude, the means of all three groups fell within the same homogeneous subset. In the construct of computer literacy, however, the mean of 24-29 and the mean of 18-23 age

groups fell under to separate subsets. The mean of the 30-35 and the mean of the 35 and above age groups fell within both subsets.

Table 25. Means for groups in different subsets for each construct on age variable

Construct	Computer Literacy		General Attitude		Attitude	
Age	Subset for Alpha = 0.05		Age	Subset for Alpha = 0.05	Age	Subset for Alpha = 0.05
	1			1		1
24-29	12.48		18-23	50.8354	24-29	89.5575
35 & above	12.59	12.59	30-35	52.0735	30-35	90.5147
30-35	12.66	12.66	24-29	52.4159	35 & above	92.4342
18-23		13.01	35 & above	53.5789	18-23	96.4241
Sig.	.777	.089		.351		.098

Finally, the researchers decided to administer the non-parametric test of Kruskal Wallis for all the 40 questions of the questionnaire to report the significant difference. 18 of the 40 questions staged a meaningful difference in the attitude of different age groups toward CALL, and 22 questions did not report any difference.

5.6. Analyzing the qualitative data

Other than the 40 quantitative questions that were analyzed in-depth in the previous sections, the questionnaire also contained two qualitative questions. Question 41 was concerned with the English language students' experience in using English language self-study software. Among the participants, 221 students (about 53.3%) responded to this optional item. Table 26 shows the categories of the CALL software (or applications) collected by the questionnaire. As shown in Table 26, English language students prefer to use the skill-based computer software rather than other types of software. Moreover, among all the software types, "Rosetta Stone" is the most popular one.

Table 26. Categorizing the CALL tools

	Category	Software/Application	No. of Ss.
1	Comprehensive 4-Skill Instructional Software (33)	Rosetta Stone	18
		Englishtown	1
		DynEd	1
		Wall Street	1
		AIEP	1
		Byki	1
		English Today	1
		English For You	1
		English World	1
		Tell Me More	7

2	Vocabulary Practice Software (3)	Wordsmith	2
		Learning Vocabulary with Solving Puzzle	1
3	Audio-Visual Software (7)	TED Talks	1
		English through news	1
		YouTube	5
4	Teaching Children (4)	Magic English	1
		English World	1
		Mingoville	1
		Clue Friends	1
5	Dictionary Software (12)	Longman Dictionary of Contemporary English	5
		Oxford Collocations Dictionary	1
		Cambridge English Dictionary	2
		Urban Dictionary	2
		KAMUSKU Dictionary	1
		Merriam-Webster	1
6	Audio Software (6)	Nosrat	1
		SATEL	1
		McMillan Sounds App	1
		BBC News	1
		JapanesePod101	1
		Tactics for listening	1
7	Translation Software (27)	ETSAM-English .com	2
		Duolingo	11
		Google Translate	13
		Translation APP	1
8	Idioms Practice Software (3)	American slang 1,2,3	1
		Speak English Like an American	2
9	Exam Preparation Software (12)	Exam essentials	1
		TOEIC i phone	2
		IELTS Software	4
		TOEFL Software	5
10	Interactive Software (4)	SPACE ALC	2
		Kahoot	2
11	Course-Book-Based Software (2)	English Files	1
		English Result	1
12	Supplementary-Book-Based Software (6)	504 Essential Words	2
		1100 Words	1
		Oxford Living Grammar	1
		Oxford Word Skills	2
13	Corpus-Based Software (2)	British National Corpus	2
14	Social Networks (5)	Twitter	3
		Instagram	2
15	Alternative Websites (4)	Eteacherenglish.com	2
		Wikipedia	1
		British Council websites	1
16	Software in General, No Reference to a particular Software (6)	English Dictionaries in General	1
		Electronic Dictionaries, Articles, & Books	4
		Android Applications in General	1
		Software for all the books I am teaching	3

Question 42, which as an open-ended question as well, dealt with the CALL experience of the learners in their own words. Out of the 415 learners of the sample, 211 participants (50.8%) provided acceptable responses for this question. Out of these 211

learners, 91.9% (194 learners) expressed absolutely positive attitudes toward the application of CALL in language learning. These learners used phrases such as "a wonderful experience", "of great use", "got great benefits", "does magic", "very accommodating", "an amazing method", "a by-product of the Internet", and "a refreshing method of learning" in order to describe their attitude toward CALL in language learning. Some other learners used statements such as "CALL gives you such a heuristic and vicarious mode enriching your experience", "CALL makes your environment conducive for learning", "CALL helped me tremendously", "CALL is worth it", "The age of blackboard and chalk is over", "CALL facilitates everything", "I feel the target language come far closer to me as a learner by CALL", and "CALL boosts my enthusiasm and self-confidence for learning". These statements let us see the positive the attitudes of the learners in this study toward CALL, and given the fact that the learners of the sample enjoyed an ample level of generalization regarding their country of origin, it would be plausible to say that the overall attitude of English learners toward CALL is positive.

The researchers found another proof regarding the positive attitude of the sample toward CALL in language learning in the fact that three of the learners (1.42%) expressed they were unlucky since, at their school years, CALL had not been developed and implemented yet. Besides, 12 participants (5.68%) expressed their regret from the fact that their CALL experience was not as much as they wished it to be, and they had planned both to expand their IT skills, and to increase the application of CALL tools in their language learning. Other positive attitudes of learners toward CALL have been classified and laid out in Table 27.

As Table 28 depicts, 32 of the learners (15.16%) described CALL as easy, useful, practical, and effective; and 15 learners (7.1%) mentioned that CALL increased their motivation, promoted their self-confidence, and reduced their anxiety. 12 learners (5.68%) proposed that CALL adds the spice of fun to their classes, and in a significant attitude, 4 learners (1.89%) mentioned that CALL could make up for the lack or absence of exposure to native production in EFL settings.

Table 28. Positive attitudes toward CALL in language learning

Positive attitudes	No. of Learners
Easy, useful, practical, and effective	32
CALL increased their motivation and self-confidence, and it has reduced their anxiety	15
CALL adds fun to learning, and it is much better than traditional learning methods	12
Use CALL to produce and present material for the classroom	9
Used CALL for research purposes	6
Helpful for self-studying	6

CALL could make up for the lack/absence of exposure to native English	4
CALL saves time	4
CALL can be used anywhere and anytime	4
Useful for doing homework	3
Use CALL tools to gain ideas as to how they could teach a particular language point	3

Other than expressing their positive attitudes, the learners in the sample described how they applied CALL in their approaches to study English, as laid out in Table 29. Thirty-six learners stated that they use software such as Google Translate or YouTube Videos to learn English, or Social Networks such as Twitter and Instagram. Moreover, 33 learners (15.63%) mentioned that they use their mobile phones or smart phones as a means for language learning. Forums and chat rooms, as well as CALL dictionaries were also popular.

Table 29. Different genres of CALL applied by learners

Genres of CALL Application	No. of Learners
Named Software such as Twitter, Google, YouTube, Instagram, or specific genres (e.g., podcasts)	36
Use mobile phones and smart phones	33
Forums and chartrooms have helped them	7
Use CALL Dictionaries	6
have subscriptions to website they find useful	1

The researchers also classified the application of CALL tools based on the skills and sub-skills. As Table 30 outlines, 8 learners (3.79%) used CALL tools for the sake of promoting their listening skills. Vocabulary progress, particularly the ESP/EAP vocabulary, and pronunciation progress were the targets which had the next ranks of frequency. Visual exposure to English as well as reading, with 4 respective participants (percentage), were also targets that learners had set for themselves to reach via CALL usage purposes.

Table 30. CALL tools applied by learners to promote language skills

Tools of CALL	No. of Learners
Use CALL for listening (movies and songs)	8
Use CALL to practice and learn vocabulary, particularly ESP	7
Use CALL for pronunciation	5
Use CALL for reading	4
Use CALL to have visual exposure to English	4
Use CALL for checking spelling and grammar	3
Use CALL for enhancing their oral production	3
Use CALL for Idioms	1

On the other hand, 17 out of the 211 learners (8.1%) expressed that they had negative attitudes toward the application of CALL in English learning. As Table 31 shows, 4 of the learners admitted that CALL was useful, yet they stated that it does not substitute the real

face-to-face classroom. Besides, 3 learners mentioned that CALL lacked teacher correction possibilities. No human interaction and boredom were the negative attitudes which were mentioned by 2 participants. Two of the teachers also mentioned that they were skeptic toward the use of CALL, seeing that they themselves had learnt their second languages by using traditional methods. One of these teachers went as far as calling CALL a total "fiasco".

Table 31. Negative attitudes toward the application of CALL in language learning

Negative attitudes	No. of Learners
It is useful but does not replace the real classroom	4
No teacher correction	3
No human interaction	2
It is boring to study with software alone at home.	2
Expressed skepticism toward CALL since they have been reared by traditional methods, does not rely on CALL	2
Just a supplementary tool	1
CALL is still incomplete, it needs to be developed	1
Can be laborious if not classified well	1
CALL needs to have better evaluation	1

Participants also expressed some of the problems that they had experienced with CALL in language learning. According to Table 32 below, 5 participants mentioned that they could not make use of CALL tools due to the lack or absence of equipment in their schools. One of the participants stated they would develop eye strain when staring at the monitor for long hours, and another one complained that teachers themselves do not know how to use CALL tools at times. Besides one of the participants objected that the majority of CALL tools these days are restricted to gap filling or MCQ exercises, so they lack creativity.

Table 32. The problems that learners reported with CALL

Problems with CALL	No. of Learners
Do not use tools in the class due to the lack of equipment	5
When I used it for a long time, I had eye strain	1
Complained that teachers cannot work with software and CALL tools	1
CALL is limited to gap filling and MCQ, it could be far more fun	1

Overall, 91.9% of the sample expressed their positive attitudes toward the application of CALL in English learning. Even the 8.1% who expressed negative attitudes admitted that CALL was useful, but they had their own concerns regarding its pitfalls.

6. Discussion

The purpose of this study was to compare the attitudes of Iranian and non-Iranian English language students' attitudes towards Computer-Assisted Language Learning. A convergent

mixed methods design was used for analyzing both quantitative and qualitative data. In data collection procedure, an online web-based questionnaire was applied, which contained 48 items. In the data analysis phase, both descriptive and non-parametric analyses were performed. In this section, the findings and conclusions of the study are discussed. Moreover, pedagogical implications and recommendations for further research are presented.

6.1. Research Question 1

The first research question was designed to find out if there are any differences between Iranian and non-Iranian English language students' attitudes towards CALL. The findings revealed that there are no differences between Iranian and non-Iranian English language students' attitudes towards CALL. As data analysis of each construct outlined, there were significant differences between the computer literacy, as well as the attitudes of Iranian and non-Iranian English students towards CALL. The only construct on which Iranian and non-Iranian students did not report any significant differences was their general attitude toward CAL.

This construct analysis shows that if there is a tendency in Iranian English language context to apply CALL materials and tools in English classes, the computer literacy of Iranian English students should be considered. Moreover, English language policy makers should consider the positive attitudes of students and therefore provide a situation in which students benefit from the technology-based educational materials. On the other hand, the difference between computer literacy of Iranian and non-Iranian English language students indicates that it is not possible to apply all the CALL materials produced in other cultures and contexts in our context. Therefore, we have to select the best CALL materials based on our students' computer literacy. Moreover, it is a great responsibility on the shoulders of educational policy makers to enhance the skills of the 21st century students, such as computer literacy.

6.2. Research Question 2

The second research question investigated the way in which gender is related to the attitudes of Iranian and non-Iranian English language students towards CALL. The data analysis indicated that there is no difference in the attitudes of English language students towards CALL based on gender. The investigation of the relationship between gender and attitudes of English language students reported a significant difference between computer literacy of men and women. However, it does not report any statistically meaningful differences between the attitudes of male and female students towards CAL and CALL.

It could be discussed that despite the fact that both female and male students hold positive attitudes towards the application of computers in learning and language learning, female students' computer literacy is lower than that of male students. From the responses to the attitudes towards CAL and CALL constructs, it was apparent that female English language students distinguished the need for computers and technology in their learning, but they are not as competent in their use as male students.

Moreover, the findings also revealed that educational policy makers should put more emphasis on training female students with computers. Also, applying the CALL materials in mixed-gender English language classrooms may provide some difficulties for female students to cope with technologies. Furthermore, to design some specific remedial courses for female students to get more familiar with computers it could be suggested in order to improve their computer literacies. At the end, providing female students with more CALL-related courses and materials prepares them for the new generation's skills at the same time that it makes them more competent in society.

6.3. Research Question 3

The third research question asked how education level related to the attitudes of Iranian and non-Iranian English language students towards CALL. The findings showed that there is no difference in the attitudes of English language students towards CALL based on education level. Finding the relationship between the education level and each construct of the study reported significant differences among the attitudes of learners with different education levels in computer literacy, as well as in attitude towards CAL. However, there was no significant difference between the attitudes toward CALL among the English learners of different education levels.

For the construct of computer literacy, significant statistical difference only existed between the literacy of undergraduate and postgraduate English students. By which, the higher level of English language among students, the more literate they are in computer knowledge. In the CAL attitude construct, however, the only meaningful difference was reported between undergraduate and graduate English students.

6.4. Research Question 4

The fourth research question examined whether and how age is related to the attitudes of Iranian and non-Iranian English language students towards CALL. The analysis of the data revealed that there is no difference in the attitudes of English language students towards

CALL based on age. According to the construct analysis, significant differences could be reported among the attitudes of English students in different age groups toward CALL for the construct of computer literacy, as well as for the construct of CALL attitude. However, the attitudes towards CAL did not report any significant difference. There was a significant difference between the computer literacy of 24-29 age group and that of 18-23. As well, there was a difference between the attitudes of the same two age groups toward CALL. No other difference was reported between any other two groups in any other constructs.

7. Conclusions

According to the findings of this study, to be Iranian or not, together with other variables such as gender, age and education level had no relationship to the attitudes of English language students towards computer-assisted language learning. In general, both Iranian and non-Iranian English language students hold positive attitudes towards CALL. Moreover, the responses indicated that most English language students understand the significance of computer skills in both their professional and daily lives. Furthermore, according to the results, the positive attitudes of English language students towards Computer-Assisted Learning are obvious. These findings may be used as a fact showing that computer literacy is a need for the future educational context. These findings also suggest that it is crucial to encourage female English language students to achieve more computer literacy to use it as an opportunity for better learning and developing a career. In the near future, English language students must be able to cope with computer- and technology-based educational materials in their classrooms. Applying CALL materials in educational settings is inevitable, and the tendency among students (which this study has corroborated) is to use these materials profusely. Nevertheless, specific training of both female and male students should be considered. In some contexts, males or females may show lack of access to the Internet and/or other technologies, and in delicately balanced opportunities more fruitful success will be achieved.

Although teacher education is not the main concern of this study, its necessity is an important aspect of language learning (Hall & Higgins, 2005). Also, teachers should be literate in computer use, which can be achieved by continuous and regular ICT training sessions. No doubt that inadequacy in manipulating technologies decreases the value and the efficacy of technology-based materials.

The focus of this study was CALL and specifically, CALL usage among my English language students. Within the field of CALL there are many areas of research, but this study

has focused on how English language students perceive the use of CALL in learning English. This evaluation must be noted as an action research-based study, so its results may not be applicable to all CALL related situations. The success of CALL in other contexts may yield to different results, so further research should be undertaken into exploring what precisely ESL students are doing on computers and the Internet. Incorporating technological tracking devices into the participants' computers would provide a daily log of English usage. This would aid in providing more direct answers to questions, asked not only by this study but also for future investigations.

As a final remark, CALL may be a vital supplementary tool for English language teaching and learning. However, all aspects of using CALL should be considered, also understanding that "technology's double face" is the key factor in applying CALL (Saeedi, 2013, p. 41). We have to pay attention to "technocentrism" and the lack of experimentation in applying CALL (Plana & Ballester, 2009; as cited in Saeedi, 2013, p. 46). Warschauer and Whittaker (1997) gave some suggestions for successful planning and implementing technology in language courses. They believed that teachers should carefully consider their goals, since little is gained by adding random on-line activities into the classroom. Clarifying course goals acts as an important first step toward the successful use of technology in classrooms. The next vital aspect of technology-based instruction is integration, and the teacher should think about how to integrate technology-based activities into the syllabus. Also, the teacher should be aware of all the complexities of using technology in learning environments, such as cultural, infrastructural or structural difficulties. According to CALL advantages, it is not logical to judge CALL as a substitute for language teachers. We should rather consider technology as the vital supplementary tool in language classes. Technology offers learners opportunities for much more valuable communicative interaction in the target language than what was ever possible in the traditional language classes (Chirimbu & Tafazoli, 2013). Therefore, there exists a need to urge language teachers to make use of technology in their language classrooms. Although it is to some extent impossible to present all CALL advantages and disadvantages in a paper, this study has reviewed a range of projects, papers and studies on CALL. From the data obtained, the researchers believe that choosing, planning and applying the CALL courseware will provide a wide range of opportunities for language teachers and learners.

The findings of the present study can be looked upon as a general driving force to the educational policy makers to allocate more budgets on providing state-of-the-art CALL programs and devices in schools and universities. In addition, course designers can benefit

from the outcome of the present study by allocating more computer activities in all stages of the educational curricula. A better familiarity with computers can result in a more frequent use of the computer in EFL classes by the teachers.

To sum up, we would like to build upon Warschauer and Whittaker (1997) to conclude with some general remarks about successful planning and implementing technology in EFL/ESL classes. They stated that teachers should carefully consider their goals, since little is gained by adding random on-line activities into the classroom. Clarifying course goals acts as an important first step toward the successful use of technology in classrooms. The next vital aspect of the technology-based instruction is integration, so the teacher should think about how to integrate technology-based activities into the syllabus. Also, the teacher should be aware of all the complexities of using technology in learning environment, such as cultural, infrastructural or structural difficulties.

We have to be careful that computers cannot change the role of teachers, but they are used to support and assist teachers and learners in different situations. Technology offers learners opportunities for much more valuable communicative interaction in the target language than what was ever possible in the traditional language classes.

We would urge language teachers to make use of technology in their language classrooms. Having such projects is a good way of motivating students to use technology outside the classroom and to make learning a part of their daily lives.

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<u>Annex 3:</u> Intelligent Language Tutoring System: Integrating Artificial Intelligence into Language Education

Intelligent Language Tutoring System: Integrating Artificial Intelligence into Language Education

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Abstract
Within the field of Computer-Assisted Language Learning (CALL), the "computer-as-a-tutor" modality has been widely accepted for some time now, although it has long been overshadowed by the "computer-as-a-tool" modality. Intelligent Computer-Assisted Language Learning (ICALL) is a multidisciplinary area of research that combines Natural Language Processing (NLP), Intelligent Tutoring System (ITS), Second Language Acquisition (SLA), and Foreign Language Teaching and Learning. Intelligent tutoring systems (ITS) are able to provide a personalized approach to learning by assuming the role of a real teacher/expert who adapts and steers the learning process according to the specific needs of each learner. This chapter reviews and discusses the issues surrounding the development and use of ITSs for language learning and teaching. At the first step, we look at ITS history: its evolution from Computer-Assisted Instruction (CAI). Then, ICALL systems focusing primarily on the needs of foreign language students and instructors will be discussed. Finally, we show how Artificial Intelligence (AI) techniques are being implemented in language education.

Kewords: *Intelligent Computer-Assisted Language Learning (ICALL), Intelligent Tutoring System (ITS), Second/Foreign Language Acquisition (S/FLA), Computer-Assisted Instruction (CAI), Language Education*

INTRODUCTION

Computer-Assisted Language Learning (CALL) has been implemented in the classrooms since technologies allow learners to apply them in their learning process free from time and space boundaries. There are different phases for the development of CALL, including the terms Behavioristic/Structural CALL, Communicative CALL and Integrative CALL popularized by Warschauer (1996; 2000). With the aid of Integrative CALL, language learning becomes an ongoing process rather than isolated steps in the computer lab. Learning is continuous when technologies are used freely. Based on Bax's (2003) description of an 'integrated' approach to CALL "physical location of the computer is in every classroom, on every desk, in every bag" (p. 21).
The main goal of the development of computer systems for intelligent tutoring is to provide students with the same educational advantages as a human tutor can offer (Anderson, Boyle, & Reiser, 1985; Brown & Greeno, 1984; Lesh & Kelly, 1996; Sleeman & Brown, 1982; Vidal-Abarca, Gilabert, Ferrer, Ávila, Martínez, Mañá, ... & Serrano, 2014). From the early emergence of computer science, computers have

been seen as capable devices with potential to improve the quality of education. In Computer-Assisted Instruction (CAI), there are now over 1,000,000 pieces of educational software available which are in contrast with Intelligent Computer-Assisted Instruction (ICAI). ICAI programs are those which "simulate understanding of the domain they teach and that can respond specifically to the student's problem-solving strategies" (Anderson, Boyle, & Reiser, 1985, p. 456). The low quality of CAI software and the displeasure of teachers with using such educational devices led to the integration of Artificial Intelligence (AI) techniques into the development of ICAI.

From 1950s to 1980s, different reasons were behind the failure of integrating AI into educational devices: a) high cost of ICAL devices, b) the large amount of time necessary to create ICAL devices, and c) lack of established paradigm for enabling students acquire knowledge [although these obstacles are now being overcome] (Anderson, Boyle, & Reiser, 1985).

History of intelligent systems was largely misunderstood and overestimated and the achievement of intelligent systems was very unrealistic (Duquette & Barrière, 2001), and more realistic purposes, subdivision and reconsideration were taken into account in this field after failing of previous expectations. Natural Language Processing (NLP) and Intelligent Tutoring Systems (ITS) have emerged as two major fields. Parsing of natural language input, either written or spoken, and error correction, machine translation, and chat bots (programs that you can converse with) are added to NLP. In Farsi (Tafazoli, 2011), Thai (Danuswan, Nishina, Akahori, & Shimizu, 2001), Japanese (Nagata, 2002), and English (Tokuda & Chen, 2004), some studies were conducted on error correction, often as a part of a tutoring system. ITS acts like a human tutor with the ability to match to the individual students' learning needs (Moundridou & Virvou, 2003). ITS save information that a teacher would have on the content to be taught, the student, and the pedagogical strategies (Curilema, Barbosab, & de Azevedo, 2007). ITS has four components (Kang & Maciejewski, 2000): 1) Expert Knowledge Module, which provides the information to be taught; 2) Student Model Module, which is a dynamic representation of the student's competence; 3) Tutoring Module, which designs and regulates instructional interactions with the learner; and 4) User Interface Module, which controls the interactions between the system and the learner.

This paper reviews and discusses the issues surrounding the development and use of ITS for language learning and teaching. Firstly, we look at ICALL history: its evolution from CALL. Then, issues in ICALL research and integration will be discussed, and we will explain how Artificial Intelligence (AI) techniques, such as ITS and Intelligent Language Tutoring Systems (ITLS), are being implemented in language education. Finally, the successful integration and development of ITLS will be explained in detail.

SHIFTING FROM CALL TO ICALL

In the last two decades, the development of CALL tutors has been the center of attention in the field (Heift & Shulze, 2003). A CALL tutor evaluates students' responses and gives feedback. This computer system checks simple "right" or "wrong" responses in the student input, so fill-in-the-blanks and multiple-choice tasks are frequently used. In this simplest version of CALL, learners' responses are compared to pre-stored answers, letter by letter, to see if learners' answers are right or wrong. When accurate responses are predictable, learners do not make any grammatical mistakes, or imagined errors correspond directly to intended feedback, the simple pattern matching can work well to detect errors (although some linguistic errors, such as embedded non-defining relative clauses happen, may not work for diagnosis). Nevertheless, activities that cannot be listed are problematic in this system. Limitations of this system can create problems in performing some activities frequently used in language education. Providing personalized feedback to individual learners on language forms and rules is another motivation for the development of tutors. Performing error diagnosis, error correction, and generating individualized learner feedback are features of sophisticated CALL tutors. There is a difference between error diagnosis and error detection; and it must be considered that the nature of errors must be analyzed in error diagnosis system, while in error detection errors just need to be identified. After diagnosing error types and presenting suggestions, error correction is applied. Intelligent Computer-Assisted Language Learning

(ICALL) systems or Intelligent Language Tutoring Systems (ILTS) are systems to perform error diagnosis and correction. ICALL systems, however, differ from ITLS. The first uses some sort of computer-assisted instruction with error analysis, and the latter reflects the work on intelligent tutors including all its properties (see Levy & Stockwell, 2006). Here, both terms refer to computer-based tutors that make use of artificial intelligence techniques (see Heift, 1998).

Traditionally, the first phase to create ICALL systems requires the incorporation of some knowledge about its target domain (i.e., knowledge about language forms and rules). Integrating NLP techniques into ICALL development has been the aim of several projects since the 1980s (e.g. Al Emran & Shaalan, 2014; Heift, 1998; Heift & Schulze, 2015; Nagata, 2002; Rypa & Feuerman, 1995; Weinberg, Garman, Martin, & Merlo, 1995). Modifying or developing parsers were emphasized in the most projects (i.e., algorithms licensing syntactic structures, to be used as error diagnosis tools). There was an attempt to create tools that could complement grammar-focused instruction in syntactic analysis in NLP.

Several proposals were made for the best syntactic formalism to develop those tools. The needs of ICALL tutors through implementations that can be compact and easily portable to other languages were examined in Weinberg, Garman, Martin and Merlo (1995), who applied 'Government and Binding' (Chomsky, 1981) framework. Matthews (1993) claimed that 'Government and Binding' can be related to theories of second language acquisition that are Universal Grammar-based.

Rypa and Feuerman (1995) defend the adoption of Lexical Functional Grammar (Kaplan & Bresnan, 1982): "characterization of linguistic representations in LFG [Lexical Functional Grammar] map into instructions as representation structures that are accessible and potentially useful to a language student" (Rypa & Feuerman, 1995, p. 61). Reuer (2003) agrees with them, arguing the application of LFG in his tutor for German by stating that "the concepts and structures used in LFG closely resemble the descriptive knowledge of language learners about language, and, therefore, the representation of an automatic analysis can easily be translated from a computationally tractable form to language easily understood by the learner" (p. 497). Another constraint-based formalism, called Head-driven Phrase Structure Grammar, was introduced by Heift in 1998, which developed the German Tutor and its successor the E-Tutor (Pollard & Sag, 1994).

More attention was paid on syntax to develop or adapt NLP technology for ICALL tutors, and some projects focused on other types of linguistic knowledge. The Military Language Tutor (MILT), which incorporates semantic processing, was presented by Dorr, Hendler, Blanksteen and Migdaloff (1995). MILT runs semantic analysis that applies lexical semantic information. As organized by Dorr (1993) based on Jackendoff (1990), information is encoded in the form of Lexical Conceptual Structures. In a system called Herr Kommissar (DeSmedt, 1995), semantic processing based on lexical semantic information is applied. A role-play in a detective game is simulated by the system and feedback is provided on syntactic and semantic structures. The development of shallow semantic processing for automatic English reading exercises that make use of Wh-questions have been observed by Bailey and Meurers (2006). Linguistic knowledge incorporates into ICALL systems to develop computer-based tutors that can interact with students in a meaningful way.

ICALL RESEARCH AND INTEGRATION

Research on computer-assisted language instruction and learning started more than forty years ago (Levy, 1997). Today a large number of people use computers. Language education methodologies have shifted to classroom procedures which include references to linguistic forms and patterns since the 1990's. These changes can be considered as the development and integration of ICALL systems; however, there are a small number of systems that apply NLP for language learning.

Twenty years ago, the unfulfilled potential of ICALL had already been noticed by Levy (1997). Yet, today his words are still true: "the influence of this area [ICALL] on CALL has so far been limited, it has the potential to alter significantly the nature of CALL" (Levy, 1997, p. 72).

The lack of integration of ICALL systems into teaching and learning process have played an important role, although NLP technology has its limitations. Previous studies not only have not focused on developing ICALL tools, but also have not taken into consideration basic parameters of second language acquisition theories. One crucial problem in ICALL research is the fact that it has often dissociated the

development of the expert model from the development of complete tutors that fulfill specific pedagogical purposes (cf. Delmonte, 2003; Reuer, 2003).

By leaving the student and the instructor models out of sight, linguists may create and develop systems that are not appropriate to assist real learners in their acquisition process so researchers may their final products useless and unrelated to the rest of the CALL community. Developing parsers to identify grammatical errors, and exercises are focused in this area and are designed to match the area of NLP that is being tested.

Research paradigms that aim at developing very sophisticated ideas in a small scale for a very narrow use is another common problem in integration of Artificial Intelligence (AI) technology in real life ICALL. It is not common to use systems that have very advanced student models or language processing mechanisms but cope with one specific aspect of language, such as clitic placement (Bull, Brna, & Pain, 1995) or passive voice formation (Virvou, Maras, & Tsiriga, 2000; Virvou & Tsiriga, 2001). The results are very insightful projects, but the final product does not include a content-based language program.

Temptation to deal with all aspects of human language in an unrestricted way is the third characteristic of some ICALL projects that has hampered the improvement of ICALL systems for real-life language learning. The purpose of these projects is to develop NLP technology to deal with totally unconstrained input. The FreeText project (L'haire & Faltin, 2003), for example, aimed at developing an ICALL software to deal with unrestricted input by intermediate and advanced students of French as a foreign language. Introducing new exercises and documents to teachers to suit the particular needs of their students was one of its original goals. Unfortunately, it did not achieve all its goals, but its results seemed promising.

Two successful examples where NLP technology was applied to generate systems robust enough to be employed as a component of a language program are Robo-Sensei (Nagata, 2002), and E-Tutor (Heift, 1998, 2003). Spanish for Business Professionals (SBP) (Hagen, 1999) is the third successful example; however, the system was used as a stand-alone product not designed to be integrated into a language program.

In these three systems, development happened due to the need of a product to be used by language learners. Evaluation of the capabilities of the technology available in relation with the pedagogical goals to be achieved was essential in their process of implementation. Finding pedagogically sound ways to elicit students' input that are in sync with the processing capabilities of the system is one of the most important challenges for ICALL systems. ICALL activity types use translation extensively to elicit students' answers and it is one of their problems. In Robo-Sensei, most of the activities are considered as simple translation exercises, despite their clear contextualization. In Japanese, widespread English cues are given to elicit students' input. Vocabulary exercises are based on simple word translations in SBP that are like drill activities whose triggers are lexical items in L1. Decontextualized dictation is another way to elicit students' input in existing ICALL systems, also this method is not used in communicative-based methodologies. Eliciting strategies to translation, dictation, or presentation of the words have been limited in the E-Tutor.

Deciding the desirable amount of L1 in its activities and feedback messages is another issue in ICALL systems. In languages with non-Roman alphabets, it is complicated to make decision when to use L1. In Robo-Sensei all information related to task descriptions and exercise instructions in English is conveyed. Feedback messages are also shown in English and some tasks use language comparisons between English and Japanese based on the outdated grammar-translation approach (Richards & Rogers, 2001).

Finally, explicit student or instruction models to guide ICALL systems feedback strategy or their instructional techniques cannot be found in the most ICALL systems used in real life. E-tutor and Interactive Computer Identification and Correction of Language Errors (ICICLE) (Michaud & McCoy, 2004) are two exceptions. The gap between the research on new NLP and AI technologies must be explored to deal with the current issues in ICALL development. Pedagogical concessions need to be reduced in activities and this is one of the main goals of a research project that aims at developing ICALL systems.

DEVELOPMENT OF INTELLIGENT TUTORING SYSTEM

From the 1950's through the 1970's, many experts in the AI field were optimistic about a day on which a computer could think like a human (Urban-Lurain, 1996). Experts in the field like Alan Turing believed that the human could overcome the limitations of computer power in the next 10 years, and thinking computer would be developed soon. The first CAI programs which presented information to the learners in a linear fashion were developed during this period. These early programs were computerized flash card systems that distinguished the correct and incorrect responses of the learners (Urban-Lurain, 1996). Although these programs had different advantages like assisting learners accomplish basic skills, providing personalized instruction at the learner's own pace, etc., some serious limitations were also reported. These limitations include: a) The linear sequence of instruction led to promote a passive approach to learning. b) Learners were not able to use natural language to solve problems. c) Learners were forced to learn in a multiple-choice environment which decrease their motivation, initiative, and creativity (Jamieson, 1991).

To overcome such plagued limitations, programmers developed CAI programs that answered to the learner based on how they responded to different questions. This type of CAI programs called "adaptive CAI" or "frame-oriented CAI" and were the forerunners to ITS. However adaptive CAI were the first learner's behavior-based model, they still suffered from the same linear limitation of early CAI programs (see Lelouche, 1998).

ITS distinguished from adaptive CAI in a way that "ITS actually conducts experiments with the learners to help the system decide the content and teaching strategies needed for a specific learning session" (Strayer, 2007, p. 21). This is not possible except the intelligent system with its own diagnostic capabilities and problem-solving expertise to give useful instructional advice to the learner (Sleeman & Brown, 1982).

Most ITS developers acknowledged that an ITS consists of four components: a) the expert module, b) the student model, c) the tutorial module, and d) the evaluation module (or user interface) (Albert & Schrepp, 1999; CoMPIO, 2001; Cruces & de Arriaga, 2000; Duchastel & Imbeau, 1998).

Expert Module

CAI educators try to present whole course via technologies. Teaching a modularized curriculum Was the reason for emerging ITS. There is an assumption that explains "as the system must operate like an expert human tutor, it must contain (and know how to use) all the knowledge of the topic at hand (or the domain)" (Strayer, 2007, p. 21) and it provides massive emphasis on ITS developers to stick to specific (even specialized) domains to prevent the growth of unmanageable proportions.

Computer programmers need to develop computer systems to be successful in writing programs and these computer systems must have the following features: (1) contain "expert" knowledge, and (2) know how to use that knowledge to solve problems. AI researchers presented a term which is called "expert systems" (i.e. computer systems that can solve problems the way human experts do) and it appeared in AI rather than in education.

In business and weather forecasters for predicting weather patterns the first applications of expert system were used. These expert systems could consider all related information and make decision as competently which is not better than human experts (Mueller, 2001).

Student Model

In order to perform better, an ITS must have some understanding of the student such as domain, learning patterns, and personal preferences/learning styles. Some ITS did not give attention to the learner's' personal learning style and just focused on modeling the student's knowledge. Student knowledge can be modeled through three different ways. The first one is called overlay model that views student knowledge as a subset of the expert knowledge within the system (Goldstein, 1982). The differential model is considered as the second way which emphasizes on the difference between the expert and student's knowledge (Burton & Brown, 1982). The last model is perturbation model that students' incorrect responses are characterized as misconceptions of expert knowledge (Burton, 1982).

There is a major challenge for developers to take student knowledge, learning patterns, and preferences and consider the pedagogical style of the system for each learner (Okamoto, Cristea, & Kayama, 2001).

This system needs to be improved. Wenger (1987) mentioned that student models must predict the student's action based on information about the student and learning preferences, consequently compare the student's actual action to the prediction and refine the model of the student. Student model is effective when it makes a judgement for student knowledge either by continual interaction or by a specific "test-like" situation. Reliable assessments are hard to achieve because even when learners understand certain concepts, they do not always respond consistently; an expert ITS must take this type of 'noisy' data into account.

Evaluation Module

Sometimes it is difficult to think about only one aspect of an ITS because ITSs are integrated systems of learning. The evaluation module overlaps considerably with the student model (and the tutorial module) and in this part of ITSs student knowledge and preferences are evaluated. The evaluation depends on how ITS models the student. Traditional tests and surveys or continual evaluation of students based on their overall interaction with the ITS can be added in evaluation process.

Tutorial Module

Teaching new materials to students is performed through the tutorial module of an ITS. The approach to the tutorial module is where the largest source of variation among different ITSs is found (CoMPIO, 2001). This assumption is reported by the Consequence Management Program Integration Office (CoMPIO) of Carnegie Mellon University's Learning Systems Architecture Lab (LSAL). Many different learning theories can be applied within one ITS. Sophisticated dialogical interaction with the student can be used by some ITSs, while others are problem driven. Subject matter and the educational philosophy (whether implicit or explicit) of the developers can influence the tutorial module.

INTELLIGENT LANGUAGE TUTORING SYSTEM

Intelligent Language Tutoring Systems (ILTS) are specially designed for language learning. ILTS may involve specific feedback to learners based on information that they enter into the computer, and it showed positive effects of language learning environments (see Heift 2001, 2003, 2004; Heift & Nicholson, 2001). In ICALL most of the work has been done on the integration of linguistic knowledge into the tutor, while AI in education deals with the development of ITSs that reproduce the behavior of human tutors.

Burns and Capps (1988) define the evolution from computer-assisted instruction into ITSs:

Computer-assisted instruction evolves toward intelligent tutoring systems bypassing three tests of intelligence. First, the subject matter, or domain, must be 'known' to the computer system well enough for this embedded expert to draw inferences or solve problems in the domain. Second, the system must be able to deduce a learner's approximation of that knowledge. Third, the tutorial strategy or pedagogy must be intelligent in that the 'instructor in the box' can implement strategies to reduce the difference between expert and student performance. (p. 1)

Well-defined domains, such as geometry, artificial languages, and Newtonian mechanics, have been emphasized primarily on sub-domains of science on the improvement of ITSs. Some of the most advanced techniques in AI for ITSs were tested in systems designed to teach for example fractions (Dugdale, 1993) or algebra (Croteau, Heffernan, & Koedinger, 2004). Well-defined domains are usually based on a fully-characterized formal theory or clear-cut domain model. Such domains are typically taught through problems whose answers can be classified unambiguously as right or wrong. Lynch, Ashley, Aleven and Pinkwart (2006, as cited in Mattos do Amaral, 2007) explain why well-defined domains are more popular in ITS development:

Well-defined domains are particularly amenable to model-tracing tutoring systems. Operationalizing the domain theory makes it possible to identify study problems, provide a clear problem solving strategy, and assess results definitively based on the existence of unambiguous answers. Help can be readily provided by comparing the students' problem-solving steps to the existing domain models. (p.16)

Ill-defined domains such as ethics, music composition, and law do not have a fully-characterized theory and challenge the improvement of a clear-cut domain model (Lynch, Ashley, Aleven, & Pinkwart, 2006). In these domains, problems presented to students have just possible or impossible answers in the form of multiple answers, or no correct answer at all. It is a fact that language is so-called ill-defined domain but it is not related to developing an ITS for language learning. The greatest obstacle for developing ITSs for language is that the meta language and knowledge representation mechanisms in the systems are totally foreign to the learner which provide a gap between diagnosing and reporting errors and the way the learner conceptualizes them.

Modeling the behavior of students while learning the aspectual difference between the preterit and the imperfect tenses in French was examined by Ogan, Wylie and Walker (2006). problems in the use of decision trees to model the learning process of French aspect were presented. The problem of learning linguistic properties was approached the same way they approach the problem of learning properties of other domains (well-defined or not).

ILTS INTEGRATION AND DEVELOPMENT

Valuable information about current practice in language education and relevant notions in SLA are described in this paper and the knowledge is applied as a point of departure for the ICALL project. Schmidt (1995) described the three major points of view represented in language education: 1) Traditional point of view in which the importance of conscious understanding and study for success in learning foreign languages is stressed. In this view, mistakes in a foreign language are the result of either not knowing the rules, forgetting them, or not paying attention. 2) Language learning (or 'acquisition') is unconscious or subconscious (no one seems to make a distinction between the two terms). In natural settings (both L1 and L2) with the aid of through interaction and the process of input, language learning happens. Students can gain a high level of proficiency, as well as a high level of grammatical accuracy, without any explicit focus on the language itself. 3) Intermediate view is clearly appeared in the foreign language profession. In this view, communicative, meaning-focused instruction is necessary, but by focusing learners' attention exclusively on meaning, all language features cannot be acquired. A focus on form appears to be necessary and desirable, especially if provided within a communicative context. Language education is believed to belong to a post-methods era, where foreign language instruction problem cannot be solved by single method or approach (see Richards & Rogers, 2001). Many language teachers present Schmidt's third point of view since it allows for the inclusion of different methodological mechanisms to struggle with learners' needs. The growth of this third choice in language education may be considered as evidence that ICALL systems that provide tasks for raising awareness of language forms and rules can be applied in common teaching practice. Students and instructors who are in favor of middle ground, multifaceted approaches that incorporate form and meaning may reject ICALL systems that use form-focused or content-focused approaches. According to Levy (1997), teachers who are CALL practitioners "consider themselves to be eclectic in the sense that they do not follow a distinct language teaching approach, philosophy, or linguistic theory" (p. 154).

For examining how ICALL systems can contribute most to language education, instructors' beliefs and observation of their workplace are necessary. ICALL systems provide greater flexibility to students in terms of time and place of study. They may control some of the burden of providing grammatical feedback from instructors. Instructors and students have to know that when a computer takes over certain activities, it is effective in the learning process (Weizenbaum, 1984).

RECENT EXPERIENCES WITH ITLS AND ICALL

Based on a large number of studies, ICALL systems developed over the years, but it seems that they developed for research purposes. E-Tutor for learning German as a second language, TAGARELA system for learning Portuguese at the university level, and Robo-Sensei for Japanese are three systems which are used in the language classroom, related to the foreign language learning curriculum, and continuously updated and improved.

E-Tutor system employs AI and NLP techniques to achieve individualized learning experience. His system is a comprehensive Web-based learning environment for university level learners of German. It offers some types of exercises such as translation, dictation, sentence formation and providing the missing word which focused on vocabulary and grammar development. NLP and feedback evaluate these activities which is based on learner performance. Activities included in each section are listening and reading comprehension, culture and writing. Writing assessment is done by the teacher (Heift 2003, 2008 & 2010).

Another example of ICALL system is TAGARELA (Amaral, Meurers, & Ziai, 2011) with the purposes of an electronic workbook, and offers feedback on spelling, morphology, syntax and semantics to each individual learner. This system is considered for learning Portuguese in university level. Six activity types are: reading and listening comprehension, picture description, rephrasing, fill-in-the-blanks and vocabulary exercises. According to creators, detect errors in the student input, diagnose knowledge level and skills of the learner, adapt the system accordingly and generate feedback are four main tasks performed in this system.

For teaching and learning Japanese in 24 lessons, and focuses mainly on translation tasks, Robo-Sensei is applied. After receiving input from the learner, itemization and morphological analysis, and parses the sentence syntactically are performed. Also, feedback and sequence of tasks are the same for all learners. The system just offers NLP services (Nagata, 1993, 1996, 1997, 2009) and it is not related to student level of proficiency or knowledge about particular language items. WUFUN is a system for Chinese university students learning English that receives both aural and visual input, which contributes to saliency, and, possibly, better attainment (Ma, 2007, 2008).

Turkish students' English vocabulary learning was taught by Your Verbal Zone (YVZ) (Esit, 2011). Root of a morphologically complex word and return its base form together with affixes with the aid of NLP was analyzed by YVZ a morphological analyzer. This system also contains a built-in, bilingual dictionary, a number of examples related to word use and details of function and meaning of particular affixes.

WordBricks is a system for supporting the process of writing grammatically correct sentences (Mozgovoy, 2012). It uses a grammar checker and help student to create free utterances. Learners also can check their own hypotheses on language structures. Although, feedback generation system is a part of this system. For improving learners' metacognitive reading strategies, C-DA program is used (Teo, 2012). In the web browser, a program called stand-alone keeps learners' answers and the 'mediation' mechanism is performed for each incorrect answer so learners are able to solve the tasks. At first, more implicit help is offered to learners and if they are not able to produce the correct answers then explicit help gradually is appeared.

A system called CASTLE helps students to practice their communicative skills, through a number of predetermined role-play scenarios (Murphy & McTear, 1997). Based on wrong input and the type of error, CASTLE provides additional grammar exercises to stress certain formal language structures. The system can change its behavior towards each learner. The system performs an up-to-date student model which saves data concerning student proficiency for a particular topic.

Spanish for Business Professionals (SBP) is another successful example of integration of NLP technology into a system (Hagen, 1999). Units in SBP program is well contextualized with a perfect selection of audio material for teaching business Spanish. linking to grammar explanations and texts with hyperlinks to an electronic bilingual dictionary are some of help tools in this program.

A Web Passive Voice Tutor uses NLP techniques and stereotype modeling to initialize the student model (Virvou & Tsiriga, 2001). This program gives feedback and advice to each student individually. Learners are guided through the learning domain by using link annotation technique.

I-PETER is another intelligent system for language learning that presents three distinct ways of learning: identifying and mending holes in the existing knowledge of the subject matter; improving on the current level of knowledge of a selected part of the domain; selecting and practicing only selected concepts and/or subconcepts of the domain (Read, Barcena, Barros, & Verdejo, 2002). Learners' answers are evaluated by the system then learners may ask for detailed theoretical explanation regarding the error.

A personalized English article system saves information about the linguistic ability of a learner and selects the most appropriate article to be read next (Hsieh, Wang, & Lee, 2012). After the reading section,

learners take a vocabulary test with new words from the article. According to their performance on the test, the learner model is updated, linguistic ability recalculated, and a new article is chosen for delivery. Finally, a computerized adaptive testing system for Chinese presents each learner an individualized test and the next test depends on the answers to previously generated test items (Wang, Kuo, Tsai, & Liao, 2012). After evaluating each answer, estimation of learner proficiency is updated by the system. The system holds all estimation of level of proficiency and answers. Test items are generated until a predetermined termination rule is reached.

According to software products which were explained above, ICALL constitutes a broad field in research and practice. Skill, level of complexity, degree and manner of employing AI and ITS technologies, way of generating feedback, even learner modeling are observed differently in various systems. However, all of them focus on to a single problem area instead of addressing a variety of issues. A software must be evaluated based on its ability to do a task and how well it does what it is supposed to do apart from its shortcomings.

CONCLUSION

Nowadays the ITS field is being developed and the weak points of pedagogical approaches are being decreased in creative ways. The introduction of multiple agents (or characters) within the ITS is the most important improvement as Winne (1989) recommended. There used to be human student and a computerized tutor interacting within an ITS, but now there are more than two computerized students are being used in ITS (Chou, Chan, & Lin, 2003).

With the aid of ITS, learners can experience competitive, collaborative, or troublemaker roles. Some students prefer experiencing an environment in which they can compete with other students to see who understands the material properly. Some other learners like collaborating with another student who needs their help. In this environment, a student can do a task and then learn the materials more deeply through teaching them to the computerized student parts of the content. In another situation, the computerized student injects erroneous information which the human learner needs to filter out in the process of completing a task; therefore, takes on the role of a troublemaker.

According to student's learning style, the human student can be introduced by different types of (computerized) learning companions within the ITS, so a richer pedagogical environment for the student would be created.

There is some unpredictable behavior of students within ITS. Coping with students' careless errors and inconsistency while learning is one of the most important skills of ITS. Researchers can allow students to act unreliably while working in an ITS by applying a knowledge assessment to refine the model of student knowledge and recover a correct model of students' knowledge (Cosyn, 2002; Cosyn & Thiery, 2000). Knowledge space theory has presented this crucial improvement recently.

Maturation of technologies from computer science especially AI makes language learning easier. These technologies provide new ways of development without the presence of a teacher. In this paper, ITSs as an example of technology used ICALL was introduced in the process of language learning and teaching. Development team must pay more attention to development and implementation of language-specific ITSs. Covering these issues may improve the overall quality and usability of an ITS, consequently results in a better learning/teaching situation. Base on the effect of current state of technology, we cannot ignore the role of teacher in the classroom, but is able to do so only to a (significant) degree. Seeking the goal of full replacement needs further improvement in AI and related natural language processing technologies.

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Annex 4: Participation in International Conferences with research related to or derived from the Thesis Dissertation

INTERNATIONAL CONFERENCES

Tafazoli, D., Gómez Parra, M. E., & Huertas Abril, C. (2018, November). *Calling for CALL Papers: A Decade of Research on Computer-Assisted Language Learning*. 4th International Conference on Bilingual Education, University of Cordoba, Cordoba, Spain

Tafazoli, D., Gómez Parra, M. E., & Huertas Abril, C. (2018, November). A *Cross-Cultural Study on Demographic Features of Foreign Language Teachers and Students in Computer-Assisted Language Learning: The Focus on Attitude*. 4th International Conference on Bilingual Education, University of Cordoba, Cordoba, Spain

Tafazoli, D., Gómez Parra, M. E., & Huertas Abril, C. (2018, June). *A Qualitative Study on the Spanish and Iranian Language Teachers' Attitudes towards Computer-Assisted Language Learning: An SWOT Analysis.* 1st International Conference on Language Gap and Digital Competence, University of Cordoba, Cordoba, Spain.

Tafazoli, D., & Gómez Parra, M. E. (2017, November). *Calling for CALL Literacy: A Necessity to Move from Computer Literacy to CALL Literacy.* 15th International Conference of Teaching English Language & Literature Society of Iran (TELLSI15), Islamic Azad University, Roudehen Branch, Tehran, Iran

Tafazoli, D., Gómez Parra, M. E., & Huertas Abril, C. (2017, November). *Chronological Review on Computer-Assisted Language Learning.* 3rd International Conference on Bilingual Education, University of Cordoba, Cordoba, Spain

Tafazoli, D. & Gómez Parra, M. E. (2017, September). *Intelligent Language Tutoring System: Applications of Artificial Intelligence in Second/Foreign Language Learning and Teaching.* 8th Biannual Conference on Issues in English Language Teaching in Iran, University of Tehran, Tehran, Iran

Tafazoli, D., Gómez Parra, M. E., & Huertas Abril, C. (2017, May). *Attitude of Iranian and Non-Iranian English Language Students towards Computer-Assisted Language Learning: From a Cognitive Point of View*. 7th International Conference on Cognitive Science, Institute for Cognitive Science Studies, Tehran, Iran

Tafazoli, D., Gómez Parra, M. E., & Huertas Abril, C. (2016, November). *Processing Prepositional Phrase Ambiguity in Bilingual Education: A Study on Persian Learners of English.* 2nd International Conference on Bilingual Education, University of Cordoba, Cordoba, Spain

Tafazoli, D., & Gómez Parra, M. E. (2016, November). *Attitude and Gender in Computer-Assisted Language Learning: A Cross-Cultural Study.* 14th International Conference of Teaching English Language & Literature Society of Iran (TELLSI13), Islamic Azad University, Kerman Branch, Kerman, Iran